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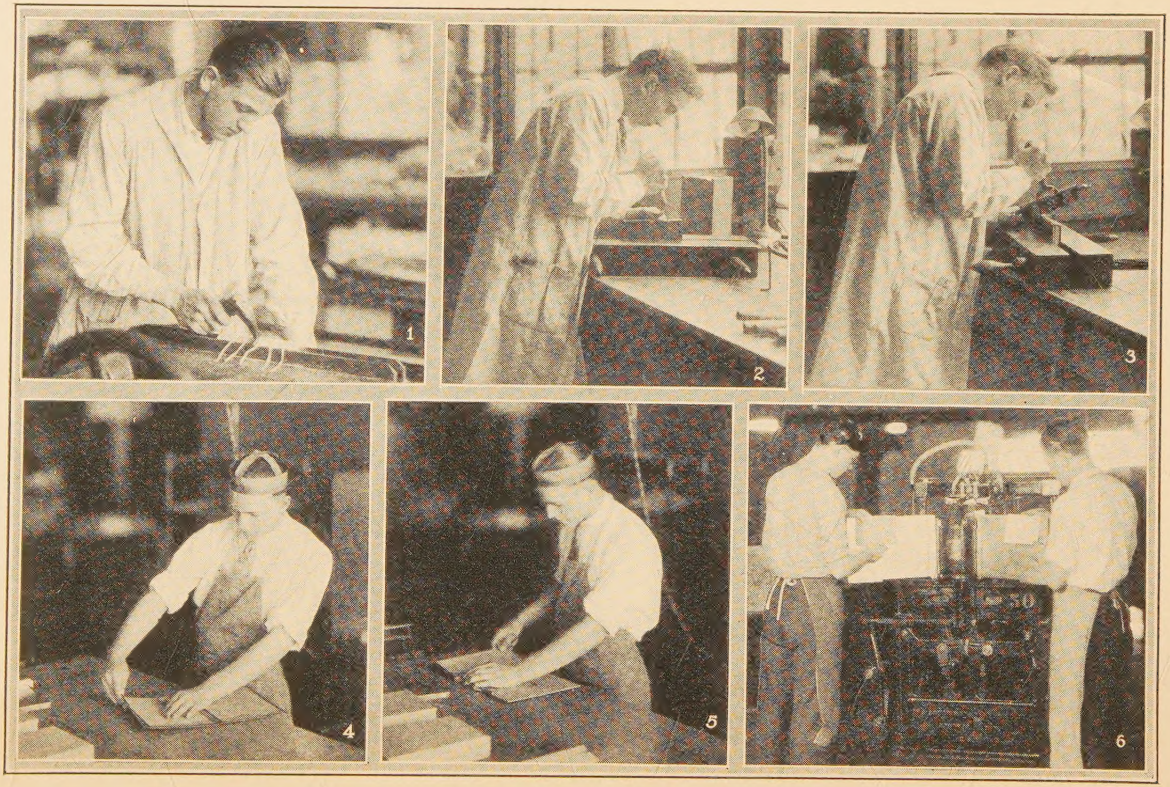
A Course in Bookbinding

PART ONE
ELEMENTARY SECTION



STUDENT TRAINING—R. R. DONNELLEY & SONS CO., CHICAGO, ILL.

A COURSE IN BOOKBINDING FOR VOCATIONAL TRAINING

Prepared by
E. W. Palmer, Past-President and
Chairman of the Educational-Vocational Committee,
Employing Bookbinders of America, Inc.

Drawings by Selden Irwin

PART ONE
ELEMENTARY SECTION

1927
EMPLOYING BOOKBINDERS OF AMERICA, INC.
NEW YORK

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SUGGESTED SCHEDULE OF STUDENT WORK

Based on two periods per week, two hours per period, for forty weeks

WEEK	1	2	3	4	5	6	7	8
Period 1	Lesson I	Lesson III Project 2 Lesson IV	Lesson V Project 3 Project 3 (Continued)	Lesson VI Project 4 Lesson VII	Lesson VII Project 5 Lesson VIII Project 6	Lesson VIII Project 7 Lesson IX Project 8	Lesson X Project 9 Project 9 (Continued)	Lesson XI Project 10 Project 11
Period 2	Lesson II Project 1							
WEEK	9	10	11	12	13	14	15	16
Period 1	Lesson XI Project 11 (Continued)	Lesson XIII Project 13	Lesson XIV Project 14	Group Project if desired	Lesson XV Project 15	Lesson XVI	Lesson XVII Project 17	Lesson XVII Project 17 (Continued)
Period 2	Lesson XII Project 12	Lesson XIV	Project 14 (Continued)		Project 15 (Continued)	Lesson XVI Project 16	Project 17 (Continued)	Project 17 (Continued)
WEEK	17	18	19	20	21	22	23	24
Period 1	Lesson XVIII Project 18	Lesson XIX Project 19	Lesson XX Project 20	Lesson XX Project 20 (Continued)	Lesson XXI Project 21	Lesson XXI Project 21 (Continued)	Lesson XXII Project 22	Lesson XXII Project 22 (Continued)
Period 2	Project 18 (Continued)	Project 19 (Continued)	Project 20 (Continued)	Project 20 (Continued)	Project 21 (Continued)	Project 21 (Continued)	Project 22 (Continued)	Project 22 (Continued)
WEEK	25	26	27	28	29	30	31	32
Period 1	Lesson XXIII Project 23	Lesson XXIII Project 23 (Continued)	Lesson XXIII Project 23 (Continued)	Lesson XXIV Project 24	Lesson XXIV Project 24 (Continued)	Lesson XXV Review and Special Operation Projects	Lesson XXV (Continued)	Lesson XXV Project 25
Period 2	Project 23 (Continued)	Project 23 (Continued)	Project 23 (Continued)	Project 24 (Continued)	Project 24 (Continued)			
WEEK	33	34	35	36	37	38	39	40
Period 1	Lesson XXV Project 25	Lesson XXV Project 25	Rebinding work for School	Rebinding work for School	Rebinding work for School	Individual Projects	Individual Projects	Review and Tests
Period 2								

It is advisable to alternate classes, avoiding holding two periods for the same group on the same day. This schedule is intended only as a guide. The various groups should be arranged after first ten lessons so that *all* students in a group are of average ability and assimilative powers. Instructor may change order of lessons or projects at own discretion and allow more or less time to each as needed.

Vocational Training School—Kingsport Press, Kingsport, Tennessee

INTRODUCTION

Vocational education has, during the past decade, received much attention and as a result of concentrated study and experimentation, made rapid progress toward inclusion in some practical form in the training courses of our public schools generally. There has been a noticeable desire to include among such studies many subjects that lend themselves readily to class and individual project execution and provide unlimited latitude for individual expression.

Bookbinding, like Printing, is one of these subjects. Unfortunately, unlike Printing, no practical attempt has been made for several years to formulate and provide in book form a training course that might be used in the public school vocational divisions, thereby laying the foundation for advanced training in high school and university classes or to encourage the selection of the bookbinding profession as a real vocation.

In 1924 the Educational-Vocational Committee of the Employing Bookbinders of America, Inc., was appointed with the definite purpose of making a survey of the entire vocational education field, of determining the interest in Bookbinding as a vocational study and to encourage that interest, if found in sufficient volume, by preparing a suitable textbook as a guide in training.

Nearly a year was consumed in effecting the survey. Questionnaires were sent to every city in the United States to determine if vocational training in any branch was given and particularly any branch of the Graphic Arts.

From this survey a summary was prepared that disclosed a tremendous interest in Printing and Bookbinding as vocational subjects. The survey also established as a fact, hitherto not definitely known, the great number of schools teaching

Employing Bookbinders of America

This certificate has been awarded to the

FIFTH AVENUE HIGH SCHOOL
PITTSBURGH, PENNA.

in recognition of the excellent work of pupils in BOOKBINDING as shown in the

Educational-Vocational Exhibition

held at the

Annual Convention
Employing Bookbinders of America
at NEW YORK CITY, SEPT. 15-17, 1927

Educational-Vocational Committee

E. W. Laemmer

Chairman

EMPLOYING BOOKBINDERS OF AMERICA, INC., CERTIFICATE
This Certificate is awarded annually to the schools exhibiting the most commendable examples of student workmanship.

Printing in some form and the unanimous desire for Bookbinding as an allied and very necessary subject.

Less than two dozen classes in Bookbinding were found. With few exceptions, these were pioneer attempts at teaching the subject, following individually designed courses and the courses quite simple at best.

In the classroom work a decided preference was found for projects that produced either saleable articles, articles of a novelty type useful only to the student as souvenirs of the training period, or in the most advanced class located, leathercraft work of a quality beyond the scope of any save collegiate students. Much rebinding of school, library and commercial work was being done in advanced classes as well.

No complete course in actual Bookbinding suitable for publication and use generally as a textbook was found. Instructors, as a whole, were journeymen bookbinders, or printers having a limited knowledge of binding, or women whose natural desires led them from the field of purely educational subjects into the more manual training field afforded by bookbinding. These latter mentioned instructors had served some time in acquiring a working knowledge of the craft sufficient to enable them to formulate simple training methods and a few projects with which to start. Once a start was made necessity again appeared the mother of invention. Considerable credit is due all instructors in binding who have, in the past, labored more or less alone in their chosen field unaided for the most part, yet accomplishing wonders, notwithstanding.

To obtain a thorough knowledge of the progress attained in the schools already teaching Bookbinding, a yearly exhibition of the work by pupils in the several schools was organized and held each October, in conjunction with the annual convention of Employing Bookbinders. These exhibits were viewed by hundreds of experienced executives and each exhibition was classed, judged by a specially appointed technical group and certificates of award and prizes given for the excel-

lence of work shown. At the third exhibition held in Detroit, Michigan, in October, 1926, a very noticeable advance in variety, quality of workmanship and execution of design was evident. It is planned to continue the yearly exhibitions and prize awards for the best evidence of technique, practical workmanship and design.

In 1925, the Educational-Vocational Committee began a thorough study of the methods of training employed in the various schools and in the apprentice-training classes in several of the industrial plants. Immediately it became evident that a difficult coördination problem confronted the Committee in formulating a textbook on Bookbinding that would be practical as a training course in vocational classes and at the same time lay the foundation for continuation work and actual apprentice training in commercial establishments later.

After considerable additional research and private experimentation it was demonstrated that such a course must be divided into sections or groups. This division is necessary for several reasons, the most convincing being:

I. Vocational training to be effective must be: first, interesting to the student; second, actually educational, by reason of constructive possibilities; third, remunerative, in the sense that the result of project workmanship may be useful or saleable; fourth, cumulative and arranged in a series of logical easy steps; fifth, individualistic, in order that sufficiently large classes may be enrolled to make profitable the services of an experienced instructor.

II. Bookbinding has three distinctive branches: first, the pamphlet and paper novelty group; second, the job, rebinding and art binding or novelty class; third, the commercial or edition binding division, hence the necessity for distinctive preparatory training for each branch.

III. Vocational training in Bookbinding, for use in educational institutions must be applicable to: first, Prevocational and Junior High School grades; second, Vocational High School grades; third, Advanced Vocational High School or College grades (under collegiate training quite naturally must come Teacher training).

IV. Prevocational and Junior High School grades must, by reason of the age and assimilative ability of the students, undertake only the most simple training projects which prepare for more advanced training.

V. High School grades can, because of the advancing age, mental and manual ability of students, undertake more difficult problems.

VI. Advanced High School and Collegiate Classes, because of their tendency toward journeyman proficiency and Teacher training capabilities (the latter only when supplemented by a continuation or finishing course in a practical plant or university course) should embrace a quite complete understanding of commercial edition binding technique.

VII. Limitations in the possible scope of training logically determine the necessity of educating by progressive steps from the simpler problems of the elementary stage through the more difficult projects of the intermediate stage to the complicated, far more embracing field of the advanced group classes.

VIII. Individualistic skill in one or more divisions of a particular branch that deserves encouragement as an effort to continue and improve on the old guild idea of specialized craftsmanship now nearly extinct.

A careful review and consideration of these eight reasons should serve to convince the experienced educator, who has settled upon Bookbinding as a suitable vocational subject, that the plan followed in developing this text is fundamentally sound and thoroughly practical. Our one claim for distinction is in the practicalness and simplicity of the plan.

Viewed from a practical standpoint, the training of apprentices in the trade has largely deteriorated in recent years to a specialized training in one, or at most, a very few branches of the craft. While this may be economic and industrially sound it is, nevertheless, shortsighted and the executive of tomorrow is palpably deficient by reason of such abbreviated training. What is needed, commercially, is a greater training in fundamentals, a more general knowledge of good book

building in its entirety, and toward such a result this text is directed. Bookbinding is a clean, healthful and quite remunerative profession. As an industry the wage rates are far above the average. Opportunity exists and will always exist for advancement beyond the limitations of bench-worker or machine operative. As an industry it is free from occupational diseases and holds an enviable record for a low ratio of physical accidents. It tends to attract a higher calibre of the youth of our land than most of the so-called laboring occupations. Employment in the workrooms of the modern bindery is preferable in many respects to average clerical positions both in remunerative and social status.

Bookbinding as a vocational study offers far greater opportunity than the majority of subjects now taught because of its unlimited field for personal initiative and creative powers. As a field for invention it is unequaled. Its principles and operative technique are easily taught and rapidly mastered. The steps are simple, logical and permanent.

The educator, to whom this preamble is directed, will observe that no rash promises are made that this course will produce competent, skilled and finished workers or teachers. That is not its object. It provides a clear, thoroughly practical and quite complete preliminary training method whereby the foundation may be laid in the minds of young men and women upon which to build the true appreciation and understanding of Bookbinding as a vocation. That is the spirit and principle underlying all vocational training.

To help the youth of our land select their vocation; to prepare them for rapid advancement to a position of responsibility and to promote the pride of craftsmanship in Bookbinding is the object of this course.

EMPLOYING BOOKBINDERS OF AMERICA, INC.
Educational-Vocational Committee.

December, 1927.

A Course in Bookbinding

EXPLANATION OF THE COURSE
I—SCHOOL ROOM LAYOUT AND EQUIPMENT
II—TOOLS, ACCESSORIES AND SUPPLIES
III—MATERIALS
IV—SCHOOL ORGANIZATION AND CONTROL
LESSONS AND PROJECTS
APPENDIX
GLOSSARY

EXPLANATION OF THE COURSE

Having determined upon the necessity for creating a textbook in Bookbinding and the factors to be considered in its construction, the next step was to outline a method of teaching that would embody all of the requirements for vocational training and at the same time provide practical training to fit the requirements of commercial establishments.

To properly construct a house that may stand indefinitely one must first properly design the structure with due regard to all the requirements of durability, practicability and artistry. This course is founded on elementary principles, developed as rapidly as it has been demonstrated by practical experience the student can assimilate and steadily progress.

Experience again dictates that the course is too large, too comprehensive and unwieldy to be accomplished except by breaking it up, first, into three units or divisions, and those divisions into easily mastered lessons combined with practical projects in which are embodied the principles to be inculcated as advancement is made.

Sufficient historical and coördination material is included in the text to provide for a general knowledge of the background and development of binding science, as well as to teach the necessity of planning far ahead of the binding processes for the results that must surely follow.

SECTION 1—the Elementary Division is planned for Prevocational and Junior High School training. This course may be extended and amplified at the will and discretion of the Instructor.

SECTION 2—the Intermediate Division is essentially a High School course of study. In the absence of a preliminary training it may be made, in conjunction with the Elementary Section, a preliminary, probationary course, for advanced or collegiate training.

SECTION 3—the Advanced Division, should only be undertaken, as a whole, by advanced High School students and in Collegiate and Collegiate Teacher training classes where complete training is desired and a foundation laid for entry into commercial or educational positions. Students in the Intermediate Division may be given research work in this division at the decision of the Instructor. Projects may be selected for special study if desirable.

It will be found advantageous to Instructor and student alike, wherever possible, to create an alliance with one or more commercial binderies for the purpose of frequent visits to view practical shop operations, to secure practical lectures on specific subjects in the classroom and for the valuable counsel and assistance such organizations can contribute to the vocational groups. If no assistance of this nature is available near you, the home office of the Employing Bookbinders of America, Inc., will gladly aid you upon written request.

We refer to the three divisions into which this course is divided. This volume takes up the Elementary Course only. There will follow, as rapidly as they can be prepared for the press, a second volume covering the Intermediate Course, and a third volume embracing the Advanced Course. An explanation of all three groups is given in this first volume of the series as a guide to the scope of the entire course.

The attention of the Instructor is particularly directed to the instructions given with each Division and Lesson-Project.

Your criticisms and helpful suggestions will always be appreciated.

E. W. PALMER.

December, 1927.

A Course in Bookbinding

PART ONE

Binding Division, Cass Technical High School, Detroit, Mich.

A COURSE IN BOOKBINDING

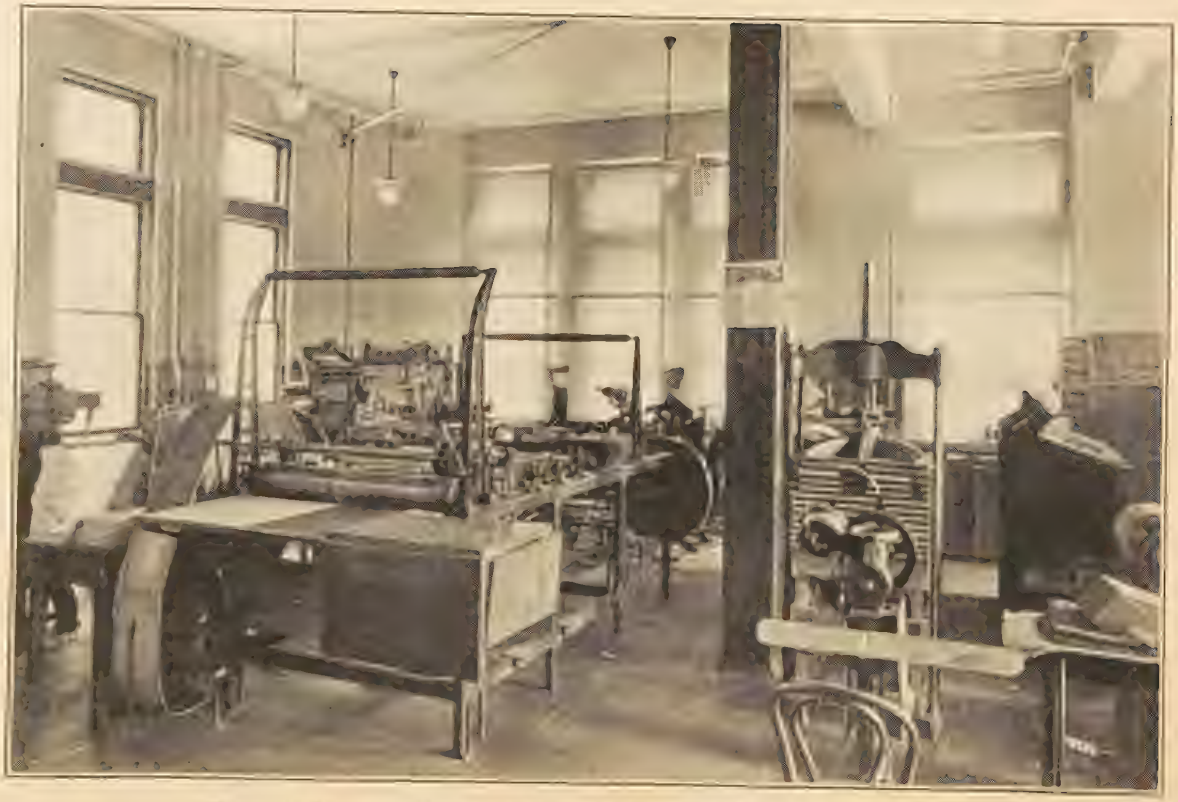
I

SCHOOL ROOM LAYOUT AND EQUIPMENT

In making a national survey of vocational training much interesting and helpful data was collected. Included were views of many classrooms, floor plans, views and designs of standard and special equipment, schedules of equipment needed for the establishment of bookbinding training classes and the like.

Believing that the advent of this textbook will promote interest in, and create a desire for, the organization of bookbinding instruction classes in many places where such training is not at present given, we are incorporating this chapter on classroom and equipment problems.

Most vocational training starts on a moderate scale. In some cities or towns it is fostered and even partially supported by the craft it represents. Such support is not universally possible nor available hence the necessity for proceeding independently on the budget appropriation from the educational funds. Under either plan moderation is strongly recommended. Start small, allow for expansion; do not attempt to develop and expand too rapidly. More can be accomplished by intensive work on a small, well-planned scale, than by spreading out unwisely on too broad a course of endeavor. The Instructor should always bear in mind that no matter what conflicting conditions or extenuating circumstances predict a failure to secure desired results, the blame eventually



Binding Division, Boardman Trade School—New Haven, Conn.

and irrevocably rests on his shoulders. Consequently it is wise to be ultra-conservative at first.

The financial allotment quite naturally prescribes the limitations of the Instructor. Budget your allowance and plan every expenditure for space, power, light, equipment, supplies, etc. Start right by selecting your classroom advisedly and with due regard to the rental, if any, that will be charged against your efforts.

The selection of the classroom is usually predicated on three factors: (1) Available space, (2) size of classes to be handled, (3) extent of the instruction to be given. Usually, when a new educational effort is to be made, any available space is deemed applicable to the project. This is quite frequently a serious impediment to the success of the undertaking. Manual training classes are too often relegated to a poorly lighted, inadequate basement, court or under-the-eaves unused space, merely because it is available (usually because everyone else has shunned it for good cause). It is always best to determine factors two and three before selecting or accepting the classroom space.

Let us assume the work is to start with an Elementary Course having a maximum enrollment of forty pupils arranged in five periods of two hours each twice a week. That would be considered a minimum class to start. The equipment needed at first will be quite simple, but having determined to teach Bookbinding it must follow that the training will extend into the Intermediate grade if not into the Advanced class. A space twenty feet wide by forty feet long should be provided.

Here again we must consider factor three. If all three divisions are to be taught eventually (which usually means the advanced division will be given for some pupils within eighteen months) then the space needed for equipment for the complete course will be needed. Some schools accomplish

Binding Division, Empire Junior High School, Cleveland, Ohio

Binding Division, Skinner Junior High School, Denver, Colorado

this within the limitations of eight hundred square feet described, although a more liberal allotment would predetermine greater success in training.

When two or more groups of students are to be trained simultaneously, as must be done in large schools, it is imperative that sufficient space be available to permit segregation at least into groups. At times pupils from several groups will be working outside of regular periods on projects they desire to finish as part of the course requirements or on special projects they propose themselves. It is well to encourage such activity and room must be provided or periods arranged to suit.

Again, the advice is the same. Study your factors, determine factors two and three first, then plan your classroom space, its equipment and layout.

The floor diagrams and dimensions shown on pages 12 and 13, will be found helpful in working out new problems. Photographs of classrooms shown on pages x, xviii, 2, 4, 6, 8 and 10, will aid in placing equipment.

Having settled upon the classroom, make or have made a floor plat or plan drawn to scale with windows, doors, lighting, and power outlets, elevators if any, toilet rooms and the like indicated.

Next settle upon your equipment. Benches or tables, machinery, desks, storage bins or cupboards, and do not forget a blackboard. This latter item can be ordinary wall board painted dull black, or a portable affair if a good slate board is not available. Make plat templates, to the same scale as the floor plan, of each table, desk, machine, etc., and lay out your equipment on the floor plan, allowing for aisles, lighting sockets, power connections and other details before you attempt to set a piece of equipment. All manufacturers of equipment can give you template diagrams or

Binding and Leather-Craft Division, Colorado State Teachers College, Greeley, Colorado

measurements and do not consider it an unusual request. Under all circumstances accept this advice, *lay out the entire floor and placing of equipment before you start.*

Pay attention to natural and artificial lighting, allow ample floor areas around benches and machines for working space, handling materials and for emergency fire exits. Place your equipment so groups may be divided and segregated. Consider the location of work tables in relation to instruction desk, storage bins, cutting equipment. Avoid congestion and double-tracking. A *little* thought spent on careful planning will save you *much* dissatisfaction and regret later. If you are a bit inexperienced on layout enlist the aid of an experienced bindery executive to help you plan your room; it is not a sign of inefficiency nor ignorance to solicit expert advice.

The selection of equipment is a matter of serious thought and careful study. Much money can be spent unwisely unless one is extremely careful. Here again the experienced bindery manager can help you. If none is available, by writing to the Employing Bookbinders Association and stating your problem, an able executive will be recruited to assist you. A complete schedule of all equipment needed is included under each division. In Appendix will be found equipment estimates for your guidance. These schedules are not conclusive although complete for the work outlined. Any one of the larger machinery and equipment dealers or manufacturers will gladly help you in the selection of proper equipment and at times can offer some real bargains in reclaimed and thoroughly rebuilt, guaranteed equipment.

A few specially designed pieces of school equipment, in which more than one facility is embodied, are available; these are shown with their particular features explained. In ordering power driven equipment remember to specify type of current (D. C. or A. C.), voltage, phase, and number

Binding and Leather-Craft Division, Colorado State Teachers College, Greeley, Colorado

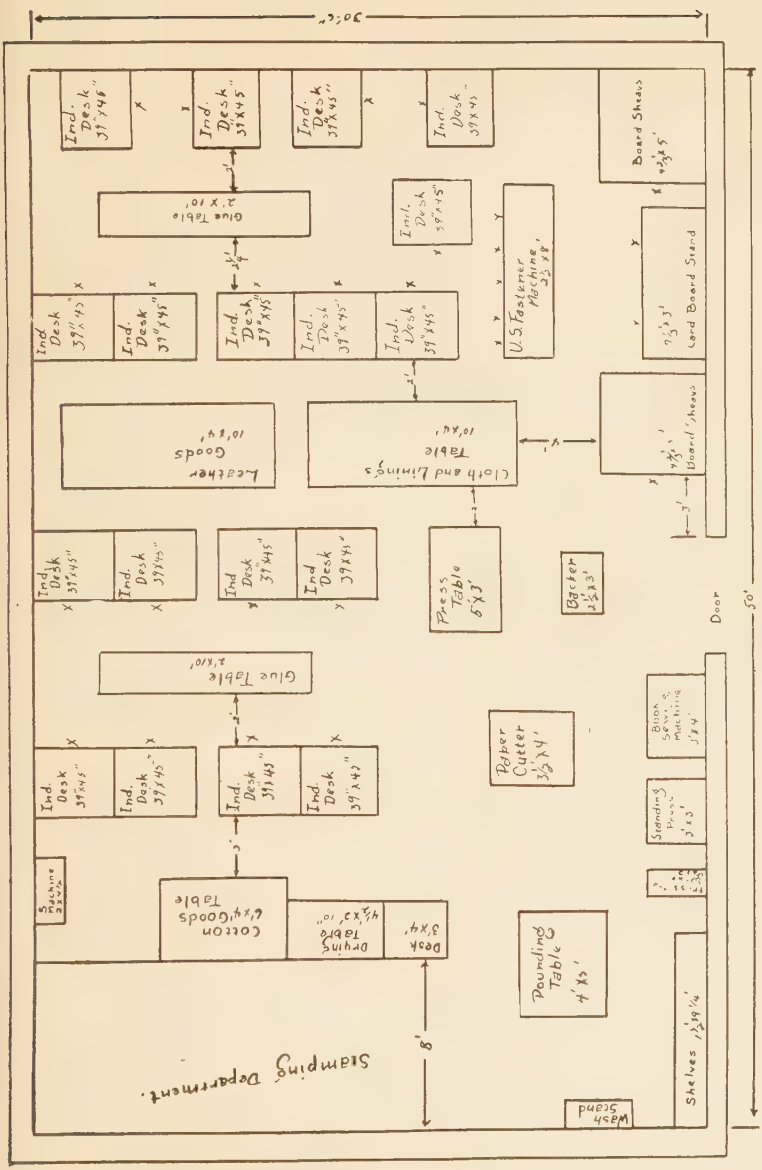
of cycles. Many light-powered machines can be run from regular lighting current sockets, provided the lines are properly fused and are of sufficient capacity to carry the loads imposed.

In buying equipment, buy the best if financially able. A poor substitute for a substantial, guaranteed article never pays. Have your equipment erected and connected to power lines by mechanics who thoroughly understand power installations. You will avoid much grief later on.

Equipment for Instructor

Your first selection of equipment should be a flat-top modern desk and swivel desk chair for the Instructor, provided with at least one 5 x 8 card index drawer in which to keep student records, supplies and equipment inventories on card files. Another drawer or two will be required to hold the work sheets of regular and special projects. In the remainder of the desk ample space will be available for the usual desk paraphernalia. With the desk should be secured a standard four drawer $8\frac{1}{2}$ x 11 vertical file cabinet. In one drawer a complete 104 cut vertical file set of index tabbed divisional leaves should be placed, and herein should be filed all correspondence, memoranda between educational divisions and the like. Little thought is usually given to systematic filing, yet a modern filing cabinet is as necessary as any piece of equipment in the classroom. The second drawer should be arranged as a materials, supplies and equipment file, in which to keep catalogs, quotations and specimens of supplies and materials, arranged and filed alphabetically. In most schools two drawers are needed for this purpose after a very short time. Expanding (Bushnell type) folders should be employed and a complete index of divisional tabbed boards inserted. Celluloid covered projecting tabs on bonnet board divisional leaves are best, for the titles may be changed by merely rewriting or typing new slip-ins under the celluloid tab surfaces. The fourth drawer

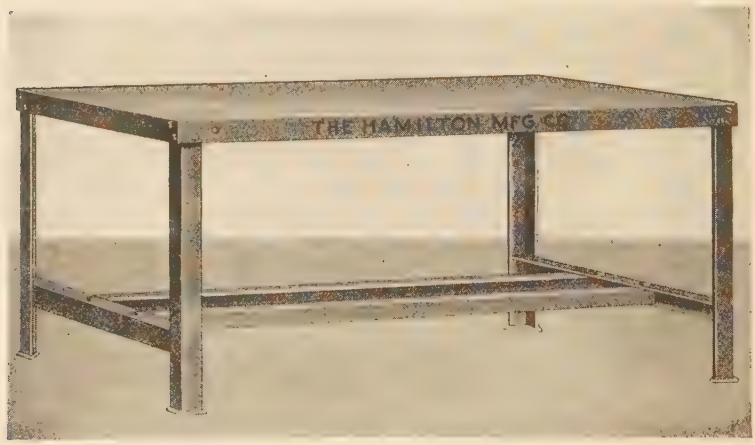
Floor Plan—Binding Division, Cass Technical High School, Detroit, Mich.



FLOOR PLAN, BOOKBINDING AND LEATHER-CRAFT DIVISION, COLORADO STATE TEACHERS COLLEGE, GREELEY, COLORADO

should be developed into a project and suggestion file. Innumerable ideas, magazine and newspaper clippings, training courses of other schools, specimen work sheets and the like can be accumulated to advantage and if classified properly and kept filed, will prove an invaluable aid for future classroom work.

A typewriter, provided the instructor can operate one, will be found indispensable for preparing reports, answering

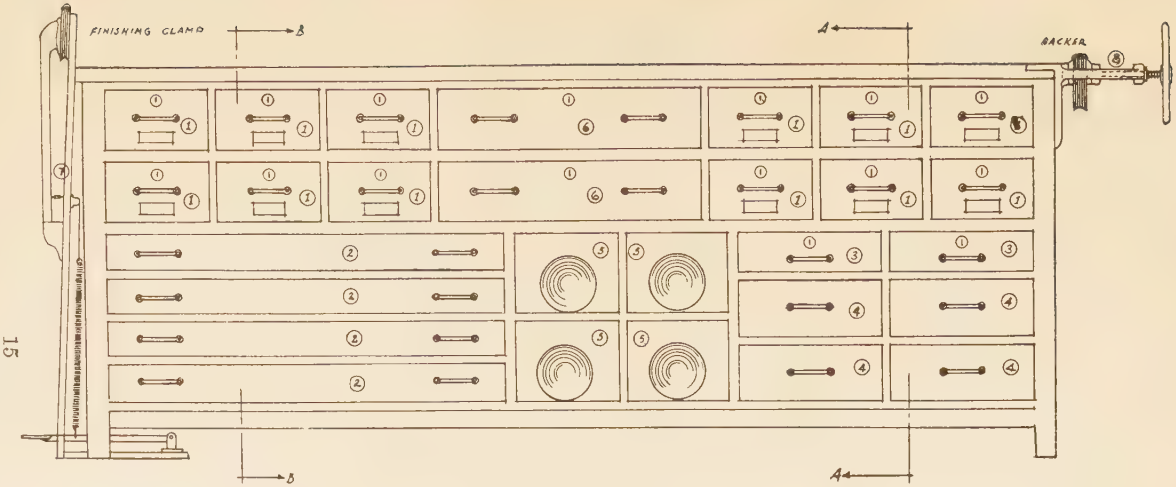


Hamilton Mfg. Co., Steel Table

correspondence, and typing work sheets of projects for classroom work. By the use of Ditto ribbons and Ditto ink all the necessary work sheets may be prepared quickly and easily and with a hand operated Ditto or Mimeograph machine as many copies as are needed may be prepared well in advance of class work.

Work Tables or Benches

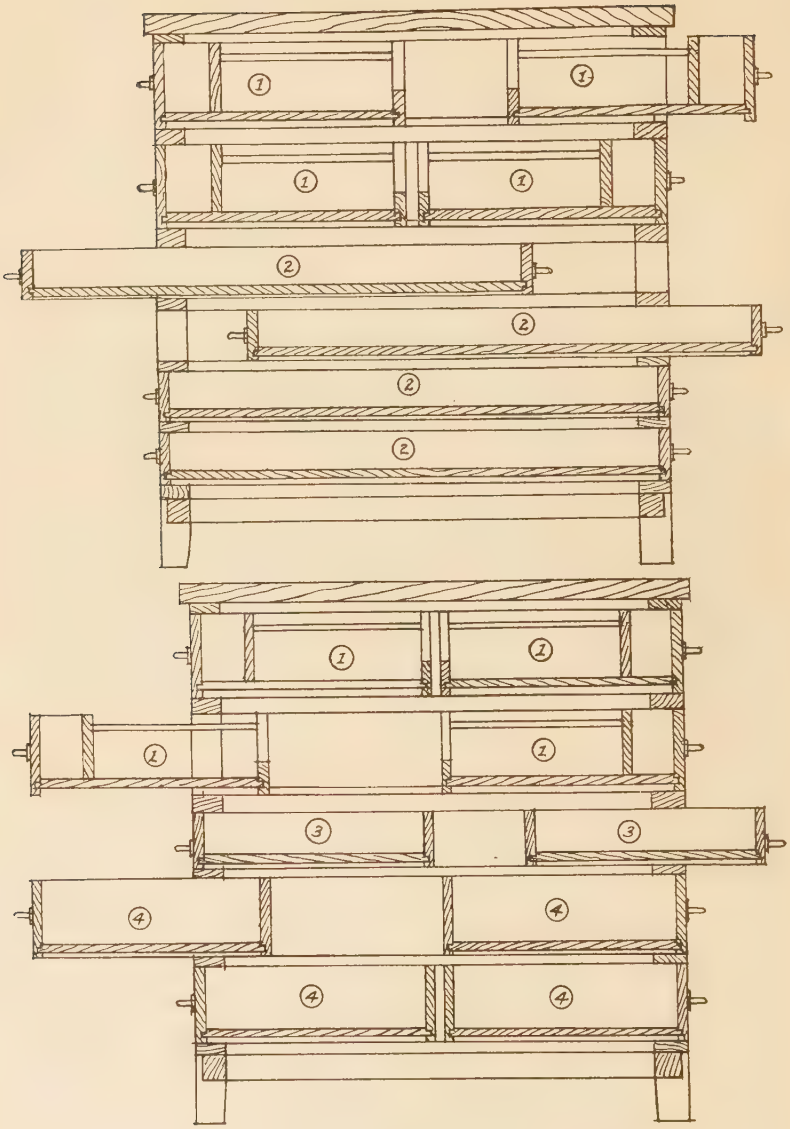
With the Instructor partially equipped, the next step is the selection of work tables or benches. Several types are



ELEVATION

LENGRAHAM VOCATIONAL SCHOOL BENCH (Front View)

This bench has twelve individual student sewing-frame tool drawers on each side, also two large and six small supplies and special tool drawers on each side; four board and paper drawers and four cloth bins extending full depth of bench; a finishers clamp at one end and a backing press at the opposite end.



Lengraham Bench—End Views (Phantom)
Showing the operation of individual and common drawers.

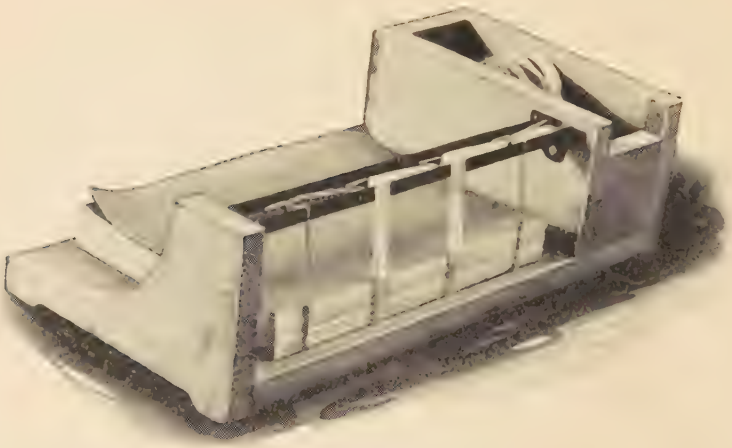
illustrated and described. All-steel equipment is much in vogue. It is durable, sanitary and after first cost, not expensive, for it requires only an occasional coat of paint to renew. Some commercial plants and many schools prefer the built-up maple, ash, or oak table-type bench with iron pipe legs, flanged at the floor ends and equipped with individual drawers for the tools and work of each student.

O. W. Schaefer, Instructor in Binding and Leathercraft at the Colorado State Teachers College, Greeley, Colorado, has designed a combination work table, stock cabinet, tool drawer and cupboard bench that is highly commendable. This is found on pages 19–20 and fully described.

E. G. Ingraham, Instructor in charge of the Vocational

American Type Founders Co., Bindery Table with Metal Roller Waste Trucks

Training Division of the Kingsport Press, Kingsport, Tennessee, recently applied for patent on an ingeniously designed sewing bench, contained within a drawer slide, permitting the student to keep within one drawer tools, sewing bench and the partially



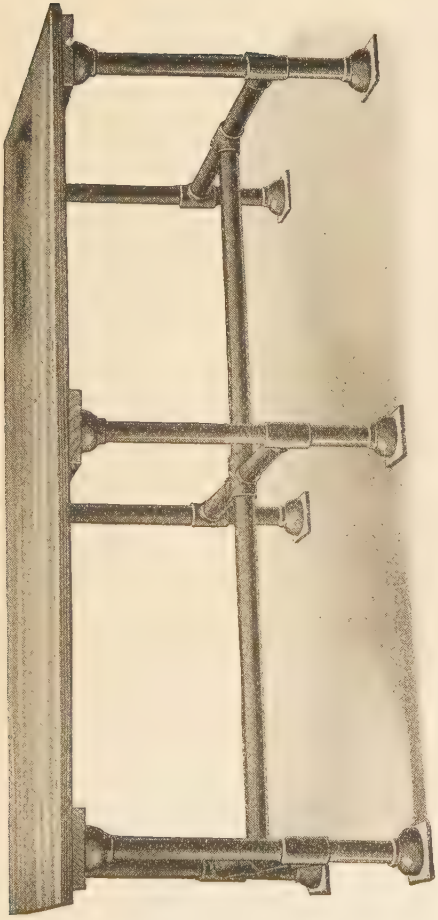
Lengraham Sewing Frame and Tool Drawer as Used in Lengraham Bench

Schaefer Combination Materials Storage and Cutting Bench

sewn book all locked into the work bench. In collaboration with C. E. Leonard, Plant Engineer, this has been developed into a standard classroom work bench as shown on pages 15 and 16. This bench provides for 24 students, with job backing and finishing presses at either end, materials, storage spaces, etc.

Schaefer Combination Work Bench—Front View
Provides space for storing hand-sewing frame, projects, tools and materials in use by four students.

Schaefer Combination Work Bench—Back View
Note the locked compartments, common tool drawer and miscellaneous utility bins.



American Type Founders Co., Bindery Table
Built up maple top, flanged base, pipe leg construction

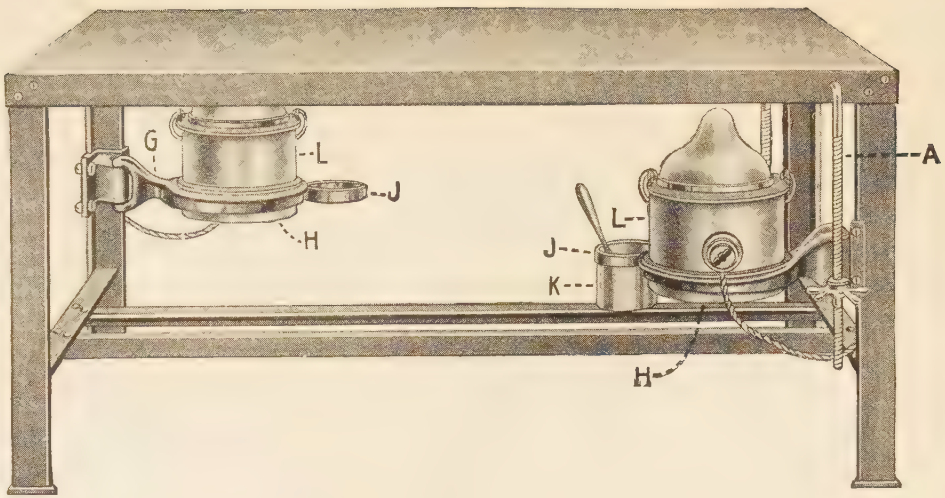
Many different types of benches or tables are available and several are illustrated and described. As work tables or benches receive the brunt of student activity they should be of good quality and those possessing in one unit work space, tool and work storage drawers or cupboards plus materials storage spaces will be found the most useful and economical.

Glue Pots

International Electric Glue Pot

Sta-Warm Electric Glue Pot

For classroom use we are inclined to recommend the dry-heat type of glue pot, thermostatically controlled, as requiring little attention and giving universal satisfaction. Be certain to get pots that have a removable metal inner-pot to facilitate frequent soaking and cleaning. Glue pots are available in a variety of sizes. The two quart size will be found the best where an individual pot is to be placed between each two workers or on one side of a bench for four students. It is advisable to have one large, gallon or six quart, pot in



HAMILTON MFG. CO., SPECIAL STEEL TABLE AND PADDING EQUIPMENT

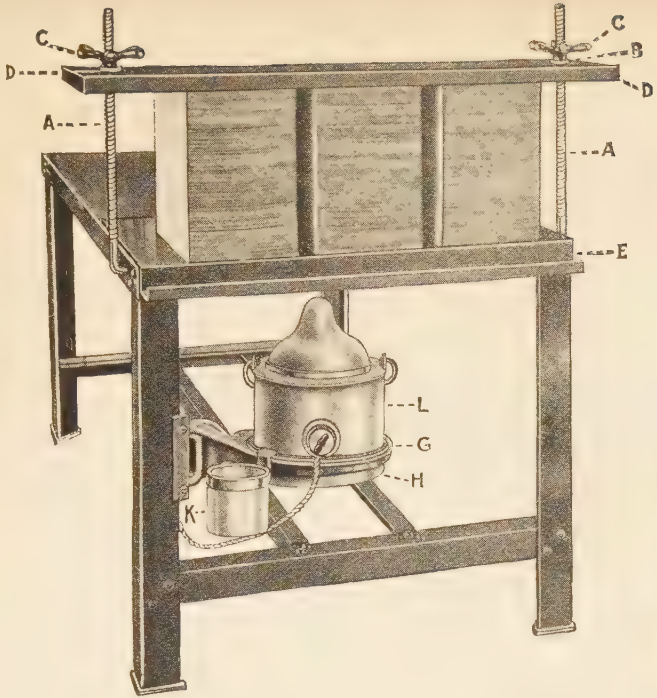
Useful not only as a work table and padding bench, but as a gluing table if it is desired to concentrate all gluing at one point.

which to melt and keep a supply of fresh glue in readiness for refilling individual pots, especially in large classes, or on projects requiring considerable gluing.

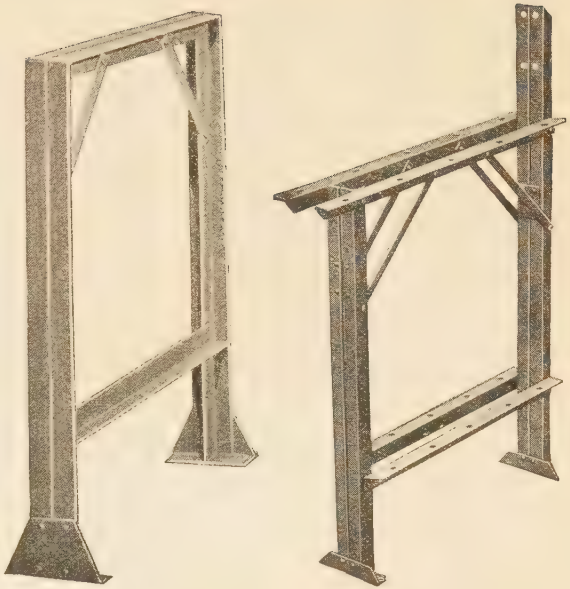
W. O. Hickok Gas Heat Glue Pot

Paste Tubs, etc.

If dry (prepared) paste is to be used (and it is the most simple, handy and cleanly material), a two gallon copper bucket with handle is needed. A wooden mixing paddle can be easily made and a wire beater should be secured for working out lumps that will form during mixing despite careful sieving or hand working of the powdered paste. This container should be kept covered especially in warm or hot weather. Individual paste tubs should be the one pint or quart variety of pressed papier-mâché with hardened varnished surface. These are called Fibrotta Paste Tubs and may be obtained from any dealer in pressed paper or fibre ware.



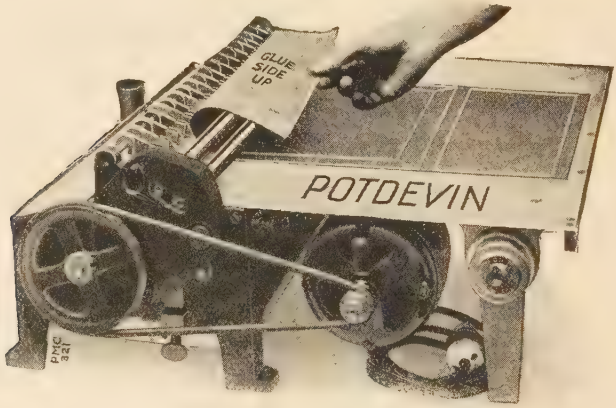
HAMILTON MFG. CO., STEEL TABLE WITH GLUING AND PADDING EQUIPMENT
Showing clamp in use and padding compound pot in readiness.



ANGLE STEEL STOOL CO., STEEL TABLE LEGS
Useful when it is desirable to make up tables as required

Gluing-off Machines

Of several on the market we recommend the Potdevin as the least expensive and simplest for classroom work. It comes in a number of sizes and for school work no conveyor belt is



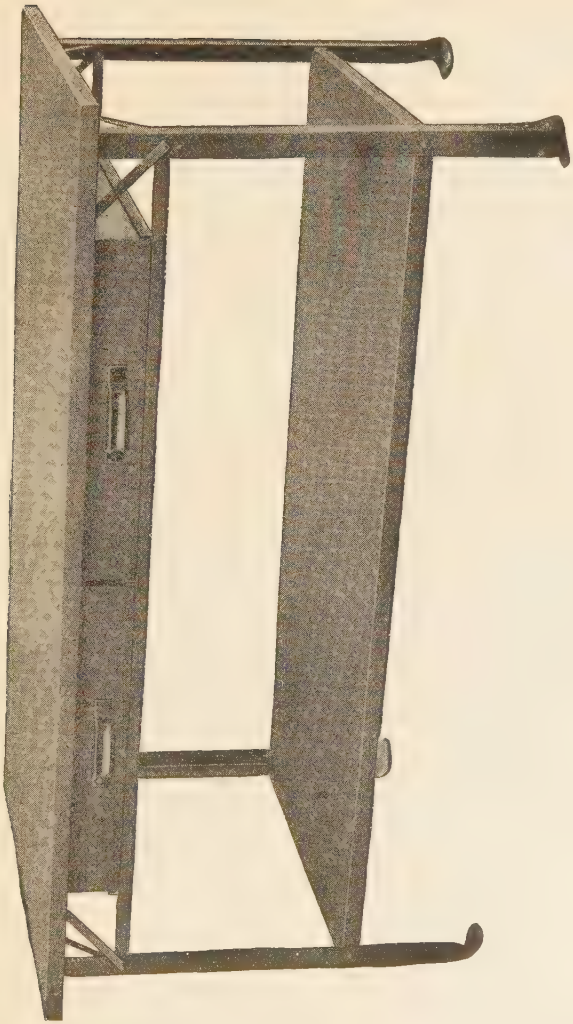
Potdevin Gluing Machine

necessary. The attachments for gluing-off boards are desirable.

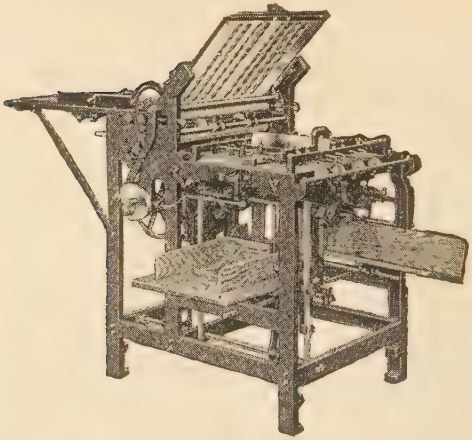
Gane Brothers and the Smyth Company also make excellent gluing machines but of a more expensive and commercial type.

Folding Machines

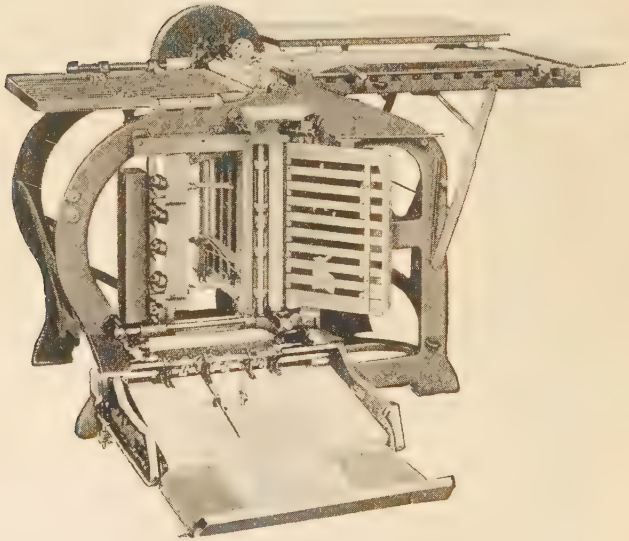
Should it be desired to extend the facilities of the school to include a folder capable of a wide variety of work in order to train students and at the same time produce real work for the institution, our selection must naturally fall upon the



Angle Steel Stool Co., Steel Table
Model having two drawers and storage shelf.

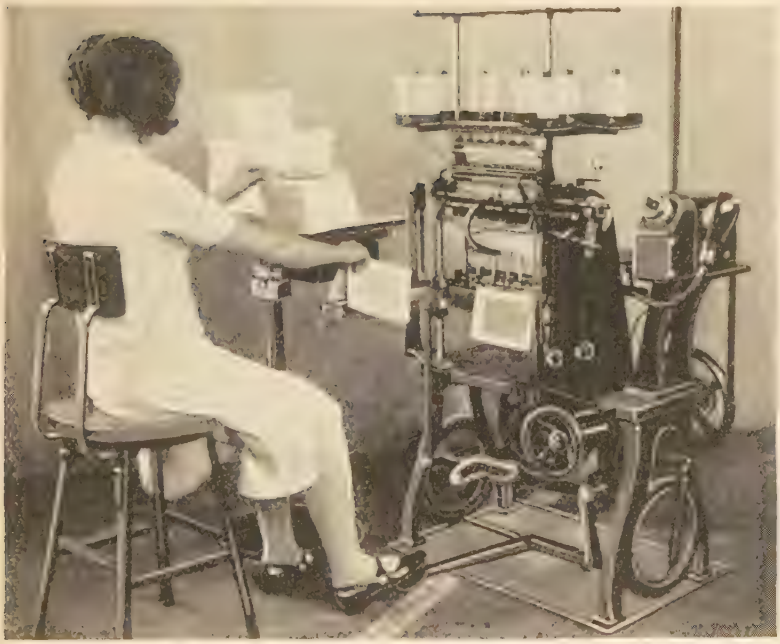


Russell Baum Folding Machine



Cleveland Folding Machine—Model B

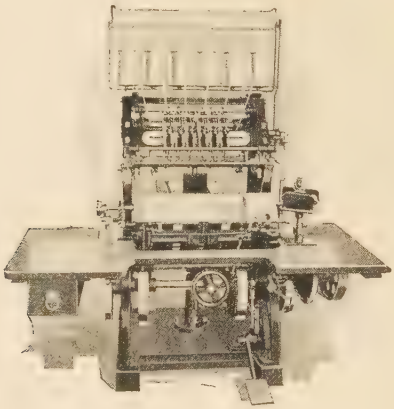
Cleveland B-type, which can be hand fed, or the Russell Baum for a smaller range of work. Few schools go into training on such an extensive scale.



Smyth No. 10 Book Sewing Machine
Power driven, with tape sewing attachment. Excellent model if machine sewing is desirable.

Sewing Machines and Benches

The Smyth number three, seven and ten machines probably outnumber all other makes in commercial plants.

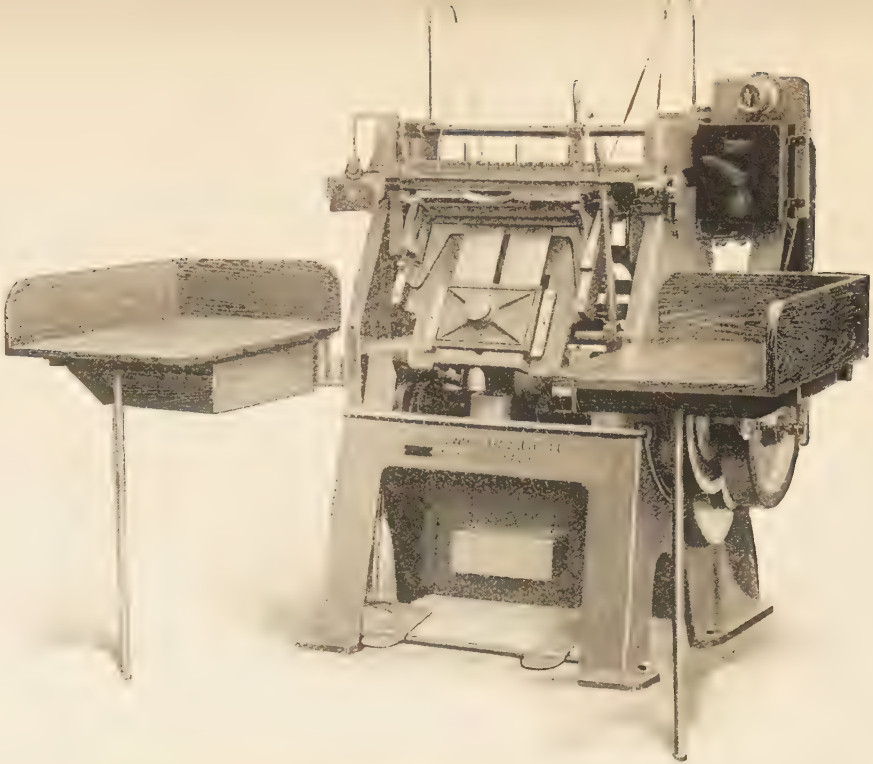


Jos. E. Smyth Co., National Book Sewing Machine

These are curve (half-moon) needle machines. Some schools prefer the Joseph E. Smyth National straight needle machine. We have no choice. The size range of the machine should be considered as the guide in selection. Either make or type is excellent if such equipment can be afforded.

In all schools hand sewing should be, and usually is, taught. The standard hand sewing frame or bench is obtainable from any dealer and usually from used equipment houses due to a surplus of such frames in these days of machine sewing.

Oversewing, the mechanical operation of overcast sewing, is now an accepted and highly commendable sewing method, much in favor for Library and all reinforced bindings. There is but one oversewing machine.



OVERSEWING MACHINE

Performs an overcast stitch, very strong, admirable for all work where strength is desirable and slight advance in cost not objectionable.

Cutting or Trimming Machines

Every school should have a small cutter. Hand (lever) operated small knife machines are quite satisfactory for school work and infinitely less dangerous.

W. O. Hickok Hand Sewing Frame

Board Shears

The need of a board shears will be quite obvious. Small table cutters, primarily intended for photo mounting establishments will do, provided board no heavier than No. 30—.065 point caliper—is to be used and will first be cut from large sheets (26 x 32) by hand to sizes that may be squared on table cutters. A Jacques or Hickok standard size bindery, hand operated board shears is actually needed and advised.

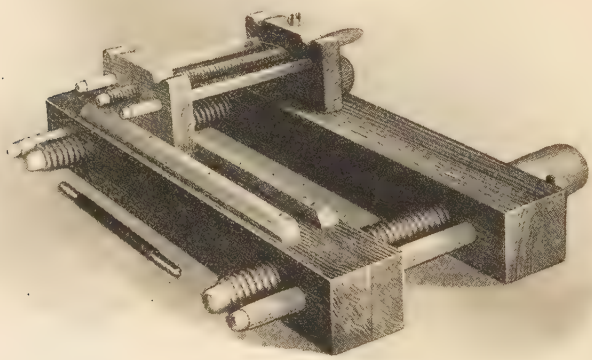
Cloth and Leather Cutting

Cloth, muslin, crash, buckram, artificial leathers and all fabrics may be easily ripped down the roll by hand, rerolled if desired likewise by hand and later cut off to desired lengths

ROYAL METAL MFG. CO., STOOL WITH ADJUSTABLE REST AND LEGS

ANGLE STEEL STOOL CO., STEEL STOOL—NO BACK REST

by means of a simple bench device that can be made in the schoolroom. (See Cutting Table for Fabrics, page 209). For leather cutting a zinc topped table will do. A sheet fibre or bonnet board shield on a table top will answer. A Krieg (wooden) leather cutting board in conjunction with Hyde knife handle and blades is the best method if finances permit.



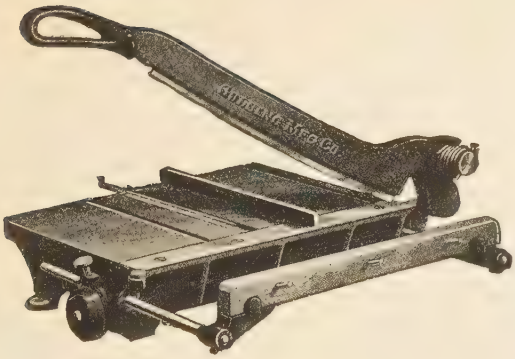
W. O. Hickok Plough and Press

Stitchers

A combination saddle and side wire stitcher is a necessity in the Intermediate and Advanced Grades. Many are available and one foot-power operated machine is shown.

Eyelet Equipment

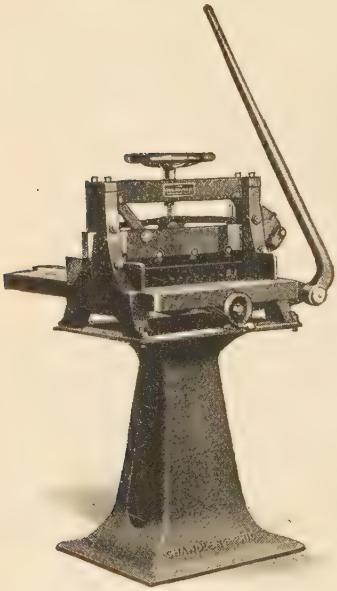
By reason of the variety of uses to which punching and eyelet setting machines can be put it is advisable to include one of each in the equipment if possible. Hand punches and



No. 12 BOSTON CARD CUTTER
Table style for small sizes and thin boards.

No. 36B BOSTON CUTTER
A larger model with individual stand; will cut larger and heavier boards.

hand eyelet setters will do if funds are limited. A small model known in the trade as the Ajax, feeds loose eyelets of



Chandler & Price Lever Cutter

A small but sturdy lever cutter with screw clamp.

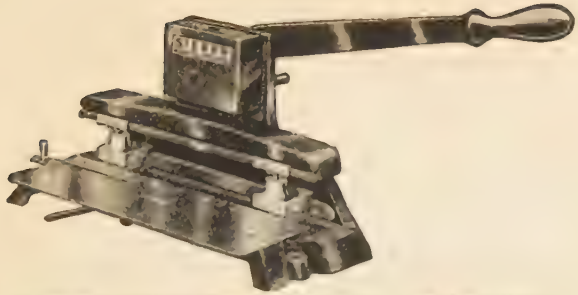
No. 5 Foot Power Boston Wire Stitcher

Capable of both saddle and side stitching.

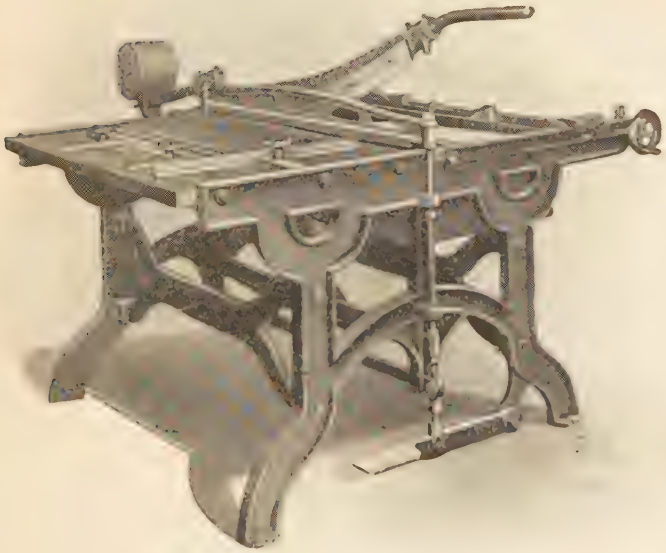
three different lengths, but only inserts one inch from edge of work. A hand eyelet punch and set is advisable for a variety of uses.

Backers

The hand job backer is a necessity. The roller backer for advanced work is equally essential. At first only a job backer should be installed. If a combination is desired the Schaefer



SIEBER PUNCH—Invaluable for all loose leaf work.



W. O. HICKOK BOOKBINDERS SHEARS
A standard bindery shear capable of handling all board cutting encountered in binding.

model of combination job backer and screw press shown by Barnhart Brothers & Spindler is all that is required.

Metal Waste Cans or Trucks

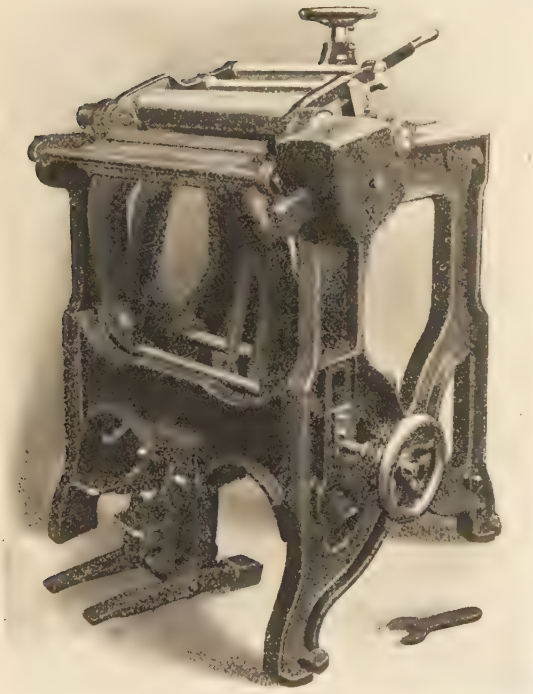
Waste containers are a real necessity in the schoolroom if neatness and orderly appearance is to be maintained. Metal

Schaefer Combination Job Backer and Drying Press in Use

containers will be found desirable and more economical in the long run. Metal waste trucks that nest under tables are shown elsewhere. Any good tinsmith or sheet metal worker can make these and affix casters. Ready-made waste cans are also available.

Standing Presses

Either a screw type large table press or a standard type of standing press should be secured for pressing and drying.



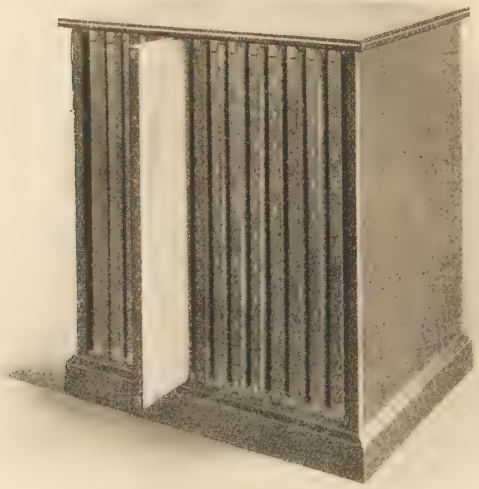
Hickok Roller Backer

Insures accuracy and makes possible perfect backing. Early training should be given in hand rounding only and may be followed or co-ordinated with roller-backing.

In the elementary work the table press is quite sufficient and if a generous size is selected the larger press can be eliminated.

Pressing Boards

In the Intermediate and Advanced courses about two dozen each plain and metal bound boards will be needed.



Hickok Cabinet and Pressing Boards

Also made by Hamilton Mfg. Co. Cabinet protects metal edgings, and provides proper storage for boards.

In the Elementary course a half dozen boards or part boards will be required. One installation will do for all courses. Secure laminated cherry or birch boards and for metal bindings duralumin is durable, noncorrosive and most satisfactory. Do not get brass-bound boards.

Sawing Out, Gilding and Finishing Clamp

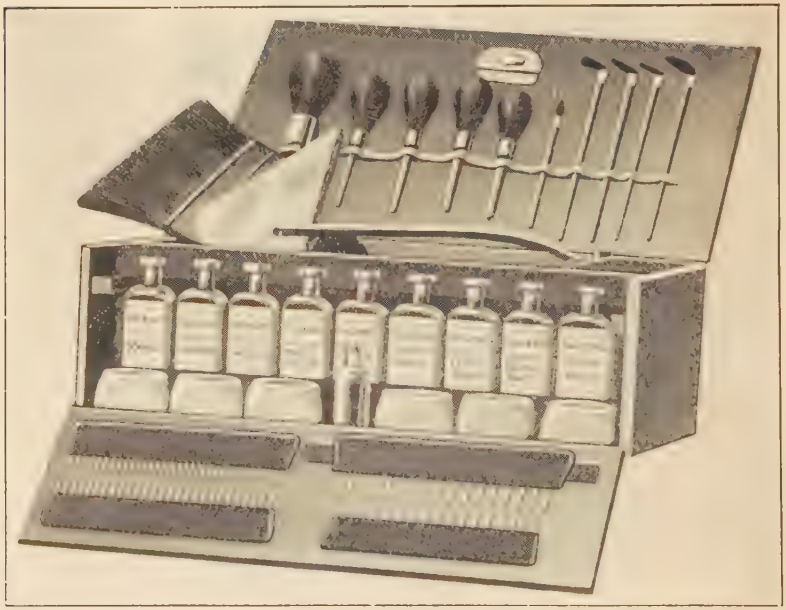
A small but sturdy finishers press that can be imposed on a gilders tub frame made in the school will answer all

Angle Steel Stool Co., Metal Waste Trucks on Casters
The metal waste can is best, these shown may be "nested" when empty.

requirements and obviate the expense of a real gilders press and stand. In the advanced course considerable training is given in gilding and a gilders press will be found most advisable.

Marbling

No one process in binding appeals quite so much to students as edge marbling. By means of the Halfer system



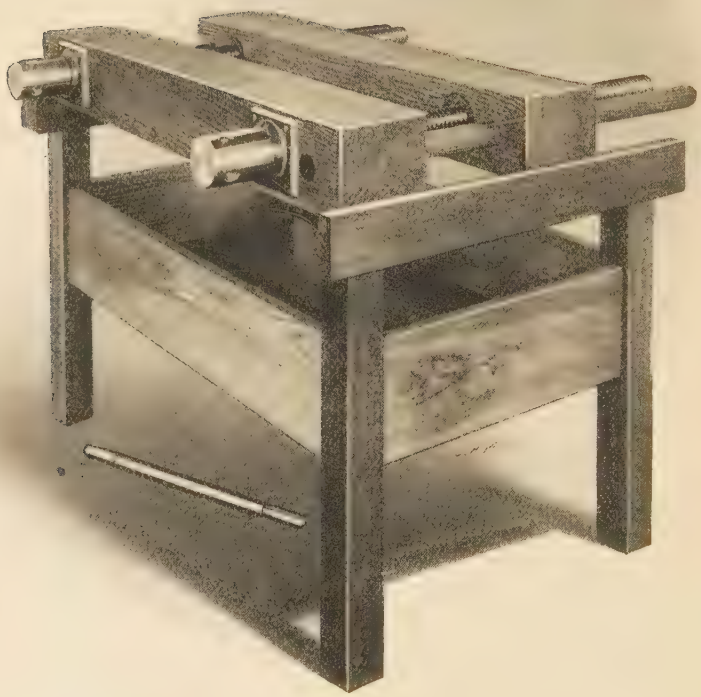
Halfer Marbling Outfit

Includes everything needed except the vat. A vat model and complete details for making one are part of the advanced course.

this becomes quite simple and the complete equipment, materials and textbook on the art are very reasonable. It is strongly recommended as a necessary study and as a means of producing not only attractive edges but a wide variety of marbled papers for book-cover sides, end linings and specialty work.

Marbling—Spattering the Colors

Marbling—Dipping Books



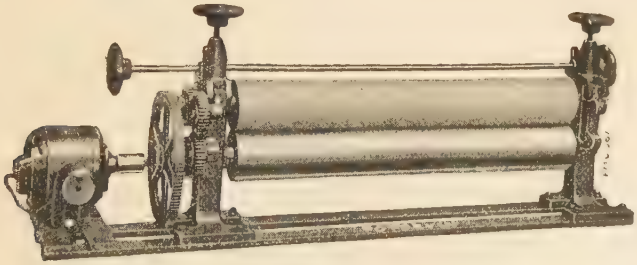
W. O. Hickok Gilders Press and Tub

This is necessary in the advanced course if Edge-Gilding is taught as prescribed. Edge-Gilding may be done in a finishers press as a temporary expedient.

Otto Scheuneman, marbling expert, New York City, also distributes marbling colors and equipment. He is also available for instruction in the art.

Wringer

An extra large size hand-operated clothes wringer mounted on one end of a work bench will be found indispensable for

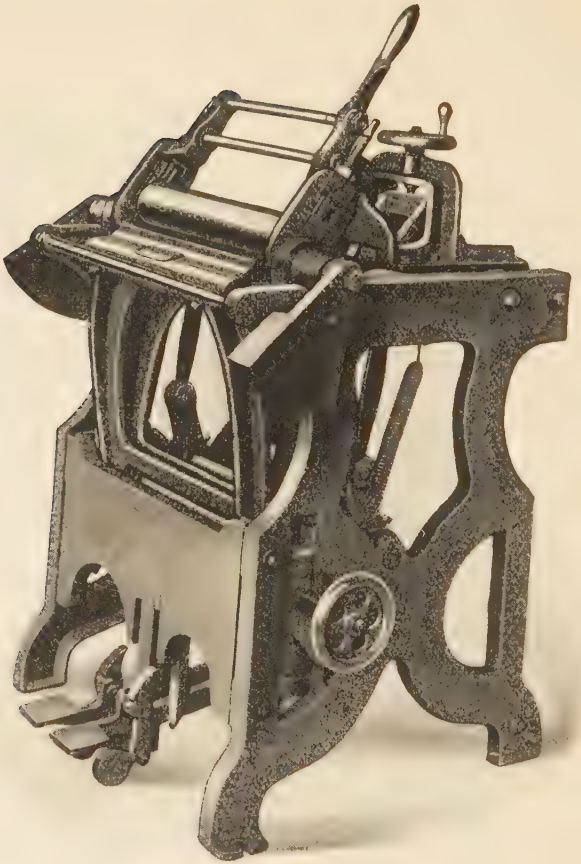


Potdevin Power Wringer

A power wringer is not recommended for school work except where some quantity production work is to be attempted.

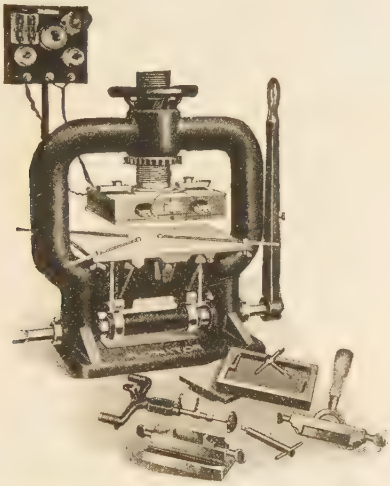
Hamilton Mfg. Co., Cabinet and Pressing Boards

pressing covers thereby removing "blisters" and causing material to adhere firmly to lining boards or paper. A power-



Wiebe Standard Roller Backer
Another standard bindery model of hand operated roller backer.

driven wringer is recommended only for large schools where advanced pupils can be trusted to keep fingers out of power wringer. An ordinary laundry wringer may be used in small schools.



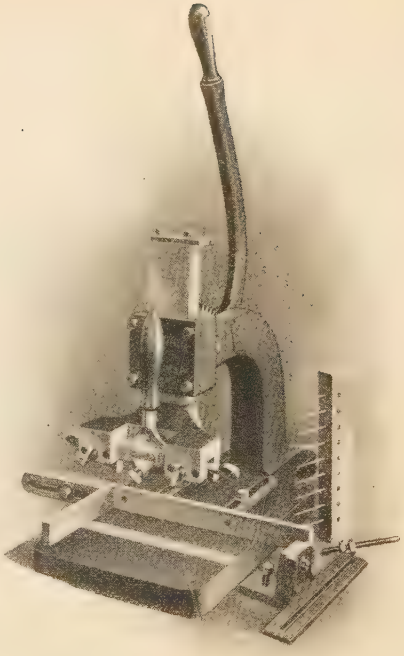
Monitor Bench Lever Embosser, Electrically Heated

This model combines the possibilities of using the hand pallet, the type-chase and the standard brass die or electro in a power (hand operated) press; a favorite school model.

Stamping or Finishing Press

If at all possible, one of the modern bench interchangeable chase type, electrically heated, ribbon gold feed presses should be installed with a few fonts of brass or foundry boldface types for titling or lettering books, novelties, labels, etc. A compromise may be effected by securing the simplest form of press without ribbon gold feed.

Hickok Hand (or Job) Backer
An individual backer, absolutely essential in school work.



Hickok Combination Lettering Pallet Press, Stabbing and Round Corner Cutting Machine
A favored combination in a most inexpensive unit.

Elementary Section

Equipment

(A complete list sufficient for a school teaching entire course and with an enrollment of 24 pupils per period)

Benches or Tables:
6–12′ x 3′ (with 4 drawers and compartments each) or equivalent in smaller benches; combination benches recommended.

Stools or Chairs:
24–Any style preferred.

Sewing Frames:
12–18″ (unless special bench with sewing frame drawers used).

Backer and Press Combination:
2–Schaefer type,
or
2–Job backers.
1–Roller backer.

Table Presses (unless standing press used):
4–Screw type letter presses,
or
2–Screw presses and
1–Standing press.

Board Shears:
1–Large size any make,
or
1–Large.
2–Small table cutters.

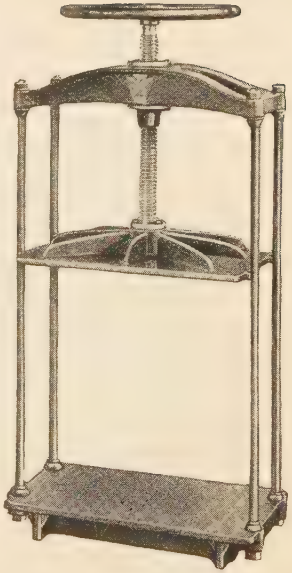
Cutters:
1–Hand lever 26″ or larger.

Sewing Machine:
1–Either make desired.

Tablet Equipment:
1–Combination padding and gluing table,
or
1–Hand tablet press.

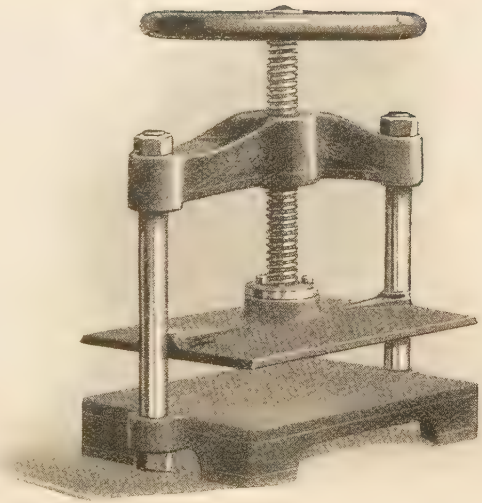
Waste Trucks:
4–Metal type, on casters.

Glue Pots:
4–2 Quart size.
1–6 or 8 Quart size.



Hickok Standing Press,
Hand Wheel Model

A floor press of good size and sufficient strength; accommodates full size pressing boards.



Hickok Table Screw Press

Useful in place of standing press but necessitating several presses and small pressing boards.

Paste Equipment:
1–2 Gallon Copper bucket.
1–Wood flour sieve.
1–Wood paddle.
12–1 Pt. paste dishes.

Gluing Machine:
1–18″ or 20″ with board attachment.

Leather Cutting:
1–Krieg block 29″ x 29¾″ x 2¾″.

Stitching:
1–No. 5 foot-power Boston Stitcher.
1–Singer thread stitcher (that will also stitch leather work).

Punches:
1–Adjustable hand punch.
1–Combination stabbing, round-corner cutter and pallet press.

Stamping Press:
1 Combination chase and pallet press, bench type, with electric heat.

Finishing and Gilding:
2–Finishing stands.
1–Small flat-top electric or gas stove.
1–6 to 10 drawer type cabinet.
6 to 12 Fonts brass type.
2–Gold cushions 9 x 18″.
2–Hand pallets.

Eyeletting and Punching:
1–Combination punching, eyeletting and snap fastener with dies.

Grindstone:
1–Foot power 10″–12″ wheel.

Sawing Equipment:
1–Sawing table (job backer or finishers press may be used).
3–Saws.

Pressing Boards:
12–Duralumin bound, or nickel plated edgings.
12–Plain.
1–Cabinet.

Marbling:
1–Halfer complete set with supplies, vat separate.

Folding:
1–Hand feed job-range (Cleveland or Baum type).

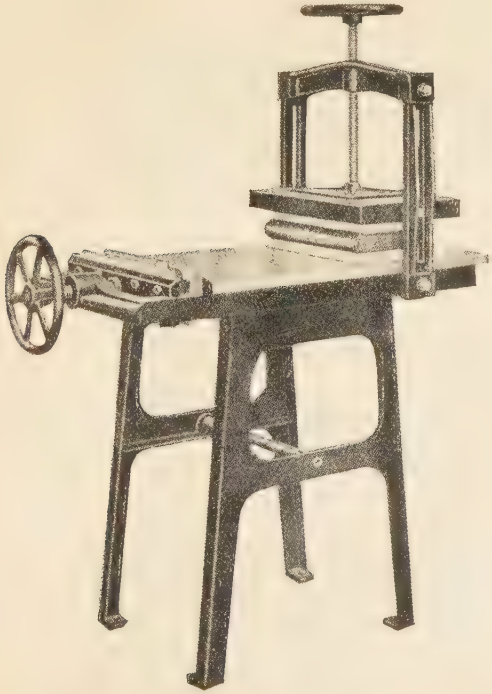
Hamilton Mfg. Co., Table Rack Cloth Cutter

This is not essential until advanced course is reached. A simple cloth cutting rack is described in detail as a group project in the Elementary Course.

Singer Sewing Machine Co., Book Stitcher

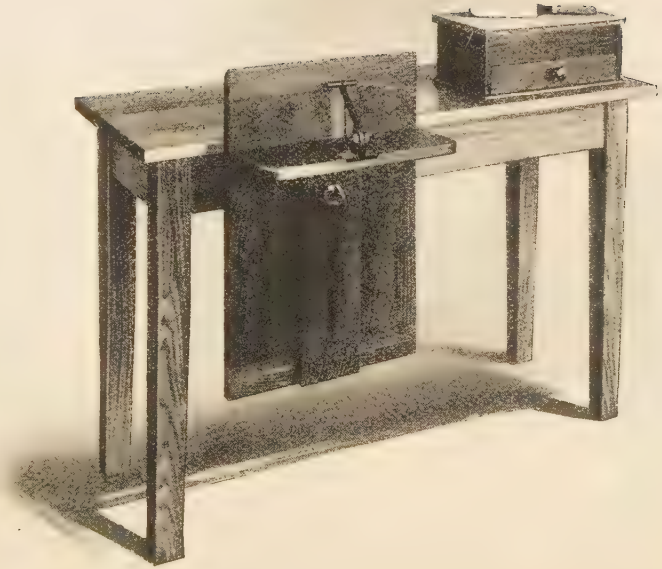
Useful in stitching saddle thread sewn booklets and for stitching leather-craft work taken up more extensively in Intermediate Course.

It is not necessary to install all of the foregoing equipment. Read each course carefully before ordering any equipment, then purchase only



Schaefer Combination Job Backer and Table Press
A useful combination especially in Elementary Classes.

that actually needed for the work you undertake and your budget permits. Under each project where certain equipment is specified an alternative method is suggested if practical.



Hickok Finishing Table Clamp and Gold Cushion
Combines work table with finishers clamp, gold cushion and drawer cabinet for gold leaf. This clamp is useful only for hand finishing backs of books.

Hickok New Model Finishers Clamp
Model designed to be attached to any work bench. Has foot treadle clamp ratchet control. Can be used only for finishing book backs.

A COURSE IN BOOKBINDING

II

TOOLS, ACCESSORIES AND SUPPLIES

Under each project heading will be found complete schedules of all tools and equipment required for that particular project. Provision for a complete outfit for all three courses would require:

For Each Pupil

1–24″ Rule and straight edge (Starrett) steel.

1– 7″ Wooden triangle, 45°.

1–Medium pencil.

1–Large red rubber eraser.

1–Pair 6½-8″ best quality steel shears (Weiss).

1–1″ Flat good quality paste brush.

1–4″ Blade wood handle shoe knife, straight blade (or 4″ paring knife or printer's make-ready knife).

1–Pair vacuum grip pliers, 6″ (No. 46).

6–Coarse sewing needles.

1–No. 17 tapestry needle.

1–Harness needle No. 000 blunt.

1–Harness needle No. 000 sharp.

1–Pr. Dividers, 6″, lock joint (No. 43).

1–Bookbinders hammer (T-head) medium weight.

1–8″ bone or wood folder.

Two Finishers Presses Arranged Above a Gilders Tub Frame
These may be used as sawing presses, gilding presses, or finishers clamps.

Hickok Finishers Bench Presses
Presses shown are the same as used in illustration above.

Elementary Section

For General Class Use (24 Pupils)

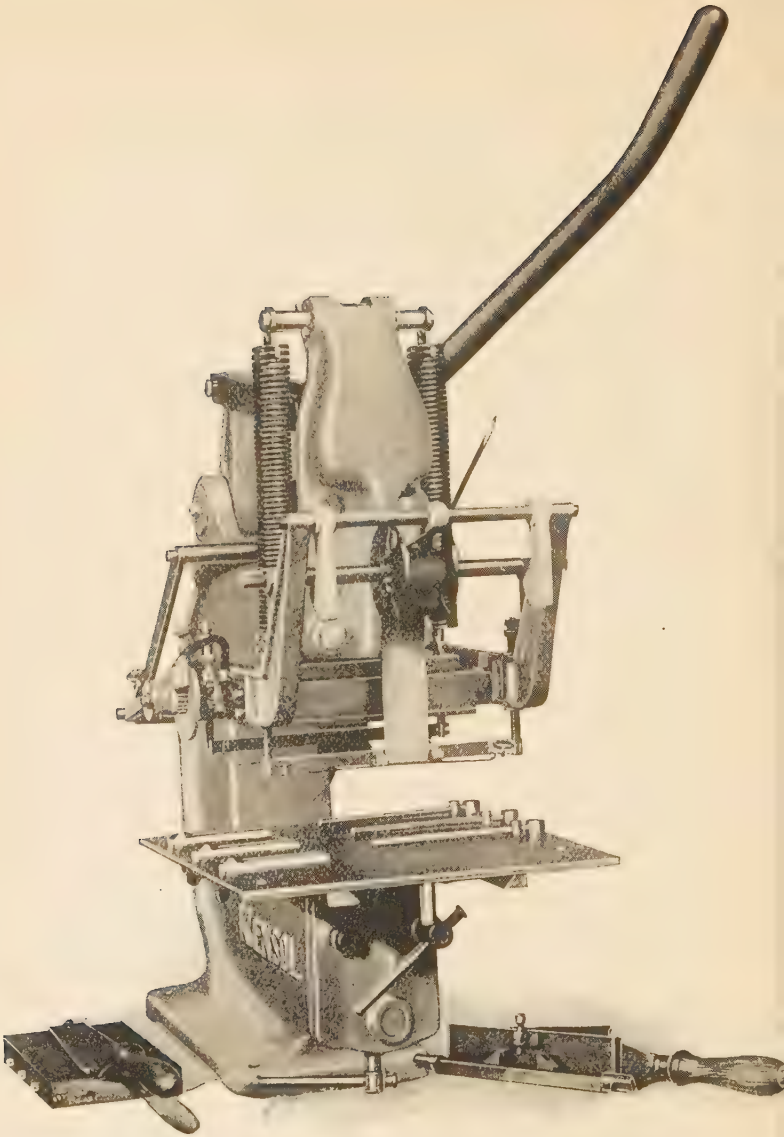
12–Shoemaker's awls—straight steel.
6–1½" Round Rubberset glue brushes.
3–1½" Round Rubberset paste brushes.
24–Common bricks—paper covered.
12–1 Pound metal block weights.
6–Zinc covered boards 12" x 18" for pasting.
24–Small sponges.
2–Fine bristle (stiff) wooden backed brushes (3" x 6").
2–1" Rubberset bear-bristle color brushes.
2–Gold layer's cushions 9" x 18".
6–Gold layer's tips (may be made in school).
2–Gold knives.
1–Gilders screen frame.
2–Hand finisher's pallets (exclusive of machine equipment).
12–Gilding and backing boards, hard maple 6" x 9" x ½" x ⅜".
1–Round polisher.
1–Flat polisher.
12–Assorted hand finisher's ornamental tools.
1–Single line fillet tool.
1–Band iron.
1–Single line creaser.
1–Single line gold roll.
2–Gilders steel scrapers.
2–Gilders agate or bloodstone burnishing tools.
1–Gilders 3" camel's hair sizing brush.
1–Sprinkling screen.
3–Paring knives.
2–Sawing out saws (finishers mitre box type).
2–1" Half moon shape wood chisels.
1–1" Flat chisel.
6–⅛" Round punches.
6–$\frac{3}{16}$" Round punches.
1–Padding gauge.
6–Iron slabs 12" x 12" x 1½".
2–Pieces litho stone 12" x 12" x 1½" or 2" thick.
6–Agate sauce pans, 1 pint size.
12–Pieces zinc 6" x 12" heavy gauge.
24–Pieces zinc 9" x 12" heavy gauge.

Gane Bros. Bench Stamping Press. Roll Gold Feed

For pallet work only; ribbon gold feed and electrically heated pallet-head is advantageous; more difficult to operate than a plain bench press.

Miscellaneous Supplies: Continued.

12–Backing boards 12″ x 6″ wedge shape.
2–Hyde leather cutter handles, 6 blades.
2–Adjustable cover-making gauges.
2–Coarse files (horseshoer's flat rasps).
1–Heavy double flat head hammer.
3–Wire clipping nippers, 6″.
6–Small balls beeswax.
2–Quires 00 sandpaper.
1–Quire coarse sandpaper.
1–Pint olive oil.
1–Quart Schlegal cloth gold size (albumen).
1–Quart Schlegal keratol gold size (shellac).
1–Pound crude rubber.
1–Pound Gilder's Bole (red chalk).
2–Ounces Beechwood Creosote.
2–Ounces Irish moss (gum).
4–Ounces Gum Tragacanth.
2–Ounces Muriatic acid.
1–Pound Burnish gold size.
1–Quart kerosene.
1–Quart benzine.
Quantities old, clean, flat newspapers.
A few binders old brass frame, fillet and ornamental dies.
1–Bundle No. 25–26″ x 32″ board (for pressing).
$\frac{1}{8}$–Pound each red, blue and yellow aniline edge colors.
$\frac{1}{2}$–Pound each red, blue and yellow pulp edge colors.
10–Pounds ground glue.
25–Pounds flexible glue.
10–Pounds Rex dry paste.
1–Pint French varnish (Zinsser).
1–Pound each Hayes Irish linen thread No. 12–2, 3 and 4 cord.
1–Pound Hayes Irish linen thread No. 16–2 cord.
1–Pound Hayes Irish linen thread No. 18–2 cord.
1–Pound Hayes Irish linen thread No. 22–2 cord.
1–Pound Hayes Irish linen thread No. 30–2 cord.
6–Balls bookbinders sewing twine and cord.
1–Roll (150 yards) each gummed Hollandtape $\frac{3}{4}$″, 1″ and $1\frac{1}{2}$″ wide, white.
1–Roll (150 yards) gummed Holland tape 2″, black.
1–Roll (150 yards) gummed Holland tape 2″, maroon.



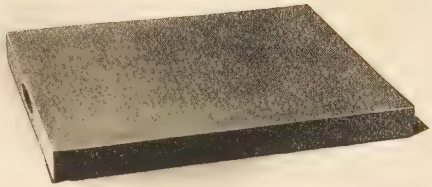
KENSOL BENCH STAMPING AND FINISHING PRESS, ROLL GOLD FEED ATTACHMENT

A very complete and versatile model for advanced work only.

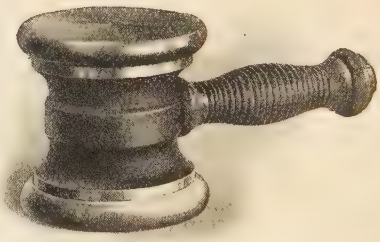
Miscellaneous Supplies: Continued.

1–Gross each 2 sizes, medium and large, black eyelets.
1–Gross each black, gray, brown and maroon, U. S. Fastener Co., buttons and snaps.
1–Package best finishers gold leaf $3\frac{3}{8}$ x $3\frac{7}{8}$.
1–Piece flat mounting muslin (white).
1–Package transparent mending tissue.
1–Piece strong joint twill—white.
1–Piece 28 x 20 count—super.
1–Piece 40 x 34 count—super.
1–Ream 24 x 36—300 pound red rope flexible paper.
1–Ream 24 x 36 medium tag (manila).
1–Bundle each 16, 18, 20, 25, 30, 40, 50—26 x 32 binders board.

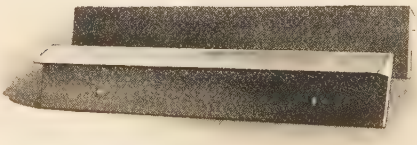
All other materials required are specified with each Lesson or Project. Those items given above are standard materials needed for stock if complete course is undertaken.



Hickok Jogging Plate



Hickok Beating Hammer



Hickok Backing Irons

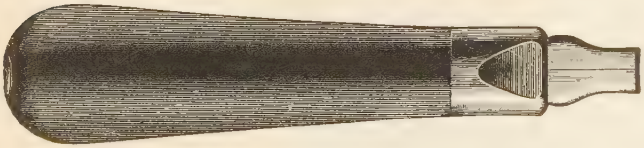
Hickok Backing Hammer

Hickok Rounding Hammer

Cloth Cutting Knife

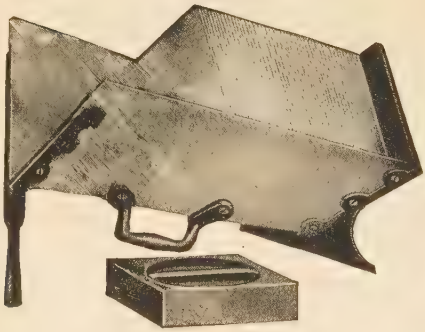
Bookbinders Utility Knife

Paring Knife

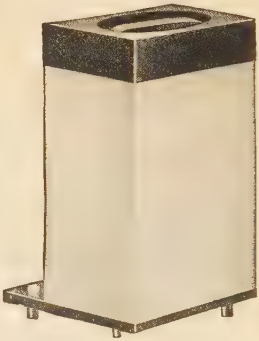


Hyde Leather Cutting Knife—Handle and Blade

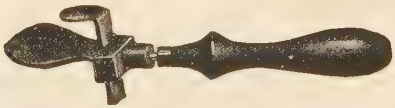
Bone Folder



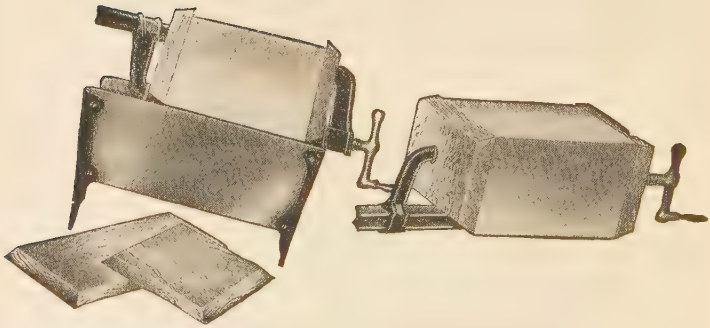
Padding Trough



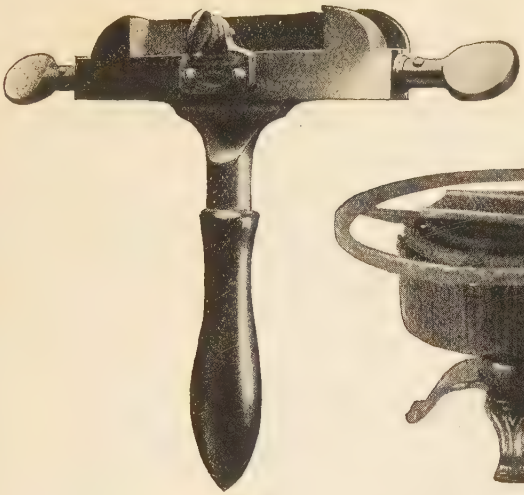
Padding Frame



Padding Gauge



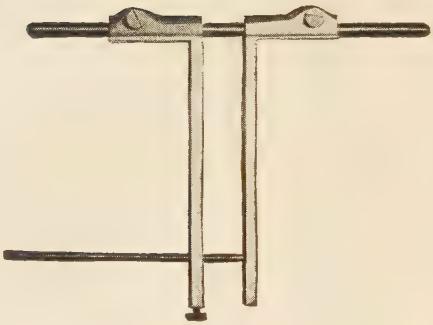
Padding Trough, Clamp and Boards



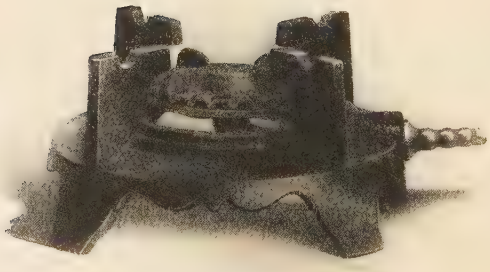
Hickok Finishers Pallet

Hickok Hand Tool Gas Heater

Barnhart Bros. Finishers Pallet



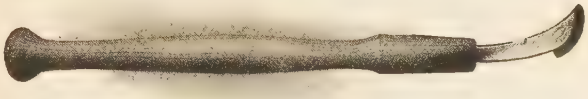
Hickok Cover Gauge



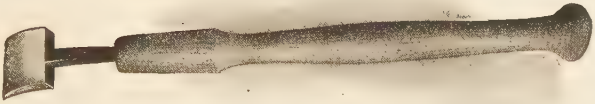
Hickok Gas Heater for Glue Kettle

Hickok Hand Finishing Tools

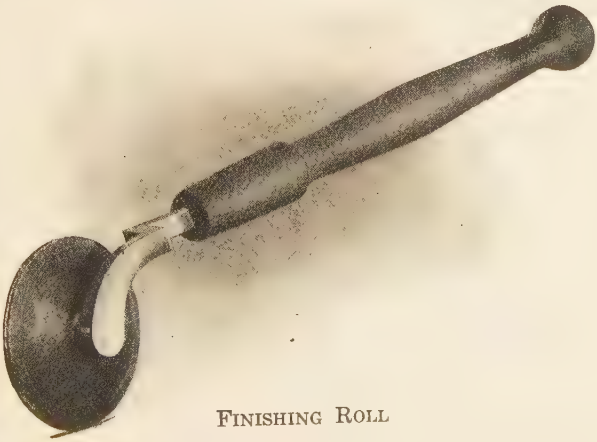
Round Polisher



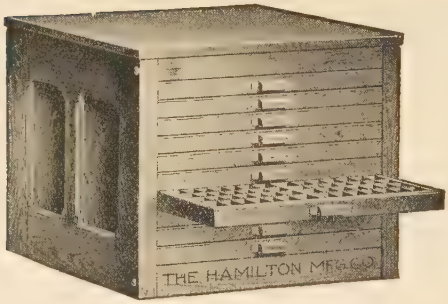
Creaser



Flat Polisher

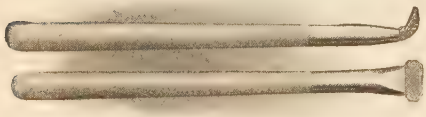


Finishing Roll

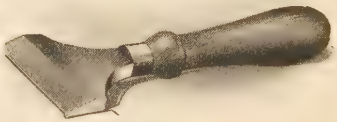


Hamilton Mfg. Co., Bookbinders Type Cabinet

Tooth Agate

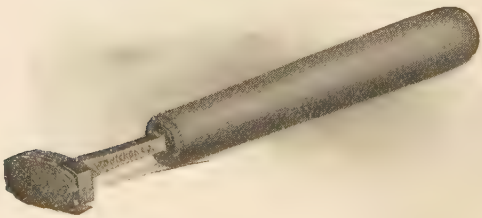


Flat Agate



Band Rubber

HICKOK TOOLS



Hand Finishing Tool

A COURSE IN BOOKBINDING

III

MATERIALS

The materials required for all project work throughout the combined course are carefully confined to well known and easily obtainable grades. In some localities the technical terms applied to materials vary somewhat. No difficulty will be experienced in securing those grades from any established binders' supply house.

Standard supplies may usually be obtained from binderies of the larger size at advantageous prices. Likewise cloth, board and leather remnants which will not work in on edition orders can be had for a fraction of the cost of new material. Such supplies suit project requirements admirably.

With each project will be found a complete list of the materials required. From these lists the Instructor can prepare schedules for the entire class. It will be found economical and advisable to keep in stock a fair supply of such staple materials as are continuously required, as for example, glues, paste, threads, boards of various grades and calipers, bookcloth, leathers, end paper stock, headbands, tapes, cord, crash, bookmark ribbon, joint muslin, mending tissue and muslin, inks, gold leaf, sizing materials, edge colors, etc., etc.

In the Appendix will be found a complete schedule of all materials specified in the several projects and wherever practicable, approximate costs for your guidance. Wherever

Examples of Binding Products by Students, State Teachers College, Greeley, Colorado

possible supplies should be ordered in standard units as indicated.

Many substitutions in materials are possible at the discretion of the Instructor. Teach the student to utilize every scrap of material that is useable and to avoid wasteful cutting of materials as so much money thrown away.

In selecting glues and pastes be careful to secure grades and types that meet your climatic conditions and suit the work in hand. Padding glue is essentially different from flexible glue, as is flexible glue from hard glue used in stiff cover making and like projects. Keep all utensils and brushes clean. Do not allow new glue to be repeatedly added to the residue from previous meltings. A good cleaning of glue pots and brushes once a week is a necessity and pays in the long run.

Vegetable glues and adhesives are available. Provided the Instructor understands preparing and using such adhesives no difficulty need be expected, but unless understood it is advisable to use the common varieties of bone and hide glues.

Mix glues carefully. If dry (flake) glue is used, soak it out well before cooking that the full water absorption may be obtained. Cook slowly in a steam jacketed or electric pot and keep the temperature not over 150° F. Most new type electric pots are fitted with thermostatic controls to prevent burning or chilling glue while using.

Flexible glue should be purchased in cake form ready to dice and melt. Combining glue, glycerine, glucose and other ingredients in compounding real flexible glue is a process no one should undertake unless some previous knowledge of the process has been obtained. There are many good flexible glues on the market.

Paste may be obtained in dry or jelly form. Dry paste is economical, easily prepared and especially during hot weather

can be prepared fresh each day. Prepared flour paste in jelly form requiring only the addition of sufficient water and a thorough mixing or beating to bring it to the required consistency is favored by many binders under the mistaken belief that it is stronger than dry paste. That is not true. Either is equally strong and useable.

If desired, paste may be made in the classroom, provided a large boiler is available and a gas or electric stove. A simple recipe is: Two tablespoonfuls of wheat or rice flour; wet slightly with warm water; place in boiler and pour over it one pint of boiling water. Boil this mixture three minutes, stirring briskly. You may increase the strength of this paste by adding while still hot and immediately after boiling, one eighth pint of warm liquid glue. This glue should be either hard (casemaking) or flexible (lining and backing) grades; never use padding glue.

A COURSE IN BOOKBINDING

IV

SCHOOL ORGANIZATION AND CONTROL

Preliminary Advice to Instructor

It is assumed that you are either a practical binder or at least have had practical experience in some of the binding operations. Consequently, if you find our instructions more elementary in tone than your experience requires, remember that this text will also be used by students unaided by experienced instructors.

Planning the Work

The first essential requirement of an instructor is, quite obviously, a thoroughly practical knowledge of the subject to be taught. As you progress through this course make it a point to study carefully each problem and project well in advance of classroom work and prepare working models for demonstration purposes. It is well to cut and prepare material for two models of each project. Finish one out completely and keep the second in materials only for demonstration and instruction.

Necessity for Instruction Helps

Each student should be equipped with a copy of this text. If this is not possible, by use of a Ditto or Mimeograph machine, work and instruction sheets covering each lesson

WORK AND INSTRUCTION SHEET

Jonesboro High School

BOOKBINDING

Elementary Course—Lesson One, Project 2

Project:

Materials Needed:

Tools Needed:

INSTRUCTIONS

Form of Work and Instruction Sheet For Special Projects or Daily Work

Reduced size; should be standardized on an 8½″ x 11″ sheet, punched to fit a ring or post-binder cover made by student.

and project should be prepared. Such work sheets are advisable even when individual texts are used, for the specific purpose of varying the project dimensions, style or materials used to fit the particular requirements of the individual class or student. By using a special Ditto ribbon on a typewriter and special Ditto ink in a fountain or stylus pen all drawings and instructions may be reproduced in any required quantity at the will of the Instructor.

Study Technical Data

Become thoroughly conversant in all the technical expressions, definitions and historical background. Nothing helps an Instructor to control, direct and inspire students quite so much as their respect and belief in his ability. This can be attained to a very considerable extent by thorough proficiency in all details of training.

Build a Reference Library

Equip yourself and the classroom with a number of accredited books on the subjects allied with Bookbinding. A suggested list for reference and supplementary reading will be found in the Appendix. Subscribe to several trade publications, especially to "Bookbinding," "Printing," "The American Printer," "The Inland Printer," "Printed Salesmanship (and the Printing Art)." Place your name on file with the Employing Bookbinders of America, Inc., to receive all their publications; better still, enroll as a member under the "Instructor in Bookbinding" classification, which costs a very nominal sum per year. "Vocational Education" is another good magazine of great practical help. A complete list of recommended trade publications is also given in the Appendix.

Jonesboro High School BOOKBINDING Elementary Course

Student's Name ..... Age ..... No. .....

Address ..... Parent's Name .....

Enrolled ..... Promoted ..... Dismissed .....

Remarks .....

.....

Project Record Indicate criticism of finished work and rating.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

A Excellent. B Satisfactory. C Unsatisfactory.

Student's Record Card—Face—5 x 8 Size

Lesson	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Attendance																																									
Deportment																																								
Application																																								
Practicalness																																								
Proficiency																																								

Grading: A—Excellent. B—Satisfactory. C—Unsatisfactory.
Attendance: √ Present. O Absent.

	1	2	3	4	5	6	7	8	9	10
Tests										

Special Work:

STUDENT'S RECORD CARD—REVERSE

School Records

It is vitally essential that a simple yet complete record of the progress of each student be kept systematically. Likewise accurate stock and supplies records and a complete account of all expenses and purchases. The class record should, for convenience, be maintained on a 5 x 8 index card on which all data pertaining to the student, his enrollment, aptitude, proficiency, deportment, attendance and work accomplished should be instantly available. These should be filed by classes or groups and alphabetically under those divisions. The card index drawer, previously mentioned in the desk of the Instructor, is the proper filing place. This drawer should be kept locked when not in use.

The form of record card shown will be found complete, understandable and easily kept. Any record form that suits the Instructor's requirements will do as well. A numerical plan of identifying students will be desirable.

School Records may be kept on file cards or by simple ledger form in a book. Stock records are best kept in card form for convenience in classifying and indexing. In many schools the main accounting division of the institution keeps all operating accounts, thus relieving the Instructor of all save stock and student records.

Start off with an itemized inventory of each piece of equipment and all data as to purchase price, installation, cost, etc. Do the same with all tools and small parts. Set these two up as your fixed inventory and carefully add to them each and every new piece of equipment, tool or improvement added so that at any time you have an accurate record of everything intrusted to your care.

Maintain an accurate balance on all supplies. As soon as practicable establish a minimum quantity to be carried

in stock to insure a ready supply always available. This is particularly essential if you are a considerable distance from sources of prompt replenishment.

Inventories

Make it a point to take a physical inventory at least twice a year. Much accumulation of useable but forgotten material will thus be brought to light and an opportunity provided for using up odds and ends otherwise allowed to become deteriorated and unfit for use.

Repairs to Equipment

Maintain your equipment at all times in top-notch operating condition. Teach the proper care and oiling of machines and other equipment. Insist upon regular, careful oiling and thorough cleaning.

Cleanliness and Sanitation

No student can become a good bookbinder nor perform satisfactorily any operation in binding unless the rule of cleanliness be paramount. A sloppy student—a poor product. Neatness in work, in the care of tools, the use of materials and in keeping the classroom orderly is an inflexible rule to be established at the start and rigidly adhered to. Clean floors and tables regularly, get rid of trimmings and waste. Insist upon working with clean hands, provide or insist upon aprons by which to protect clothing, and plenty of soap, water and towels. Smocks for girl students and dusters or smocks for boys are much in vogue and recommended.

Jonesboro High School BOOKBINDING MATERIALS

Name of Material.....

From Whom Purchased..... Size and Unit.....

.....

Date Ordered	Date Received	Quantity Received	Unit	Price Per Unit	Total Price	Date Issued	Issued to Student	Amount Issued	Value	Balance in Stock

STOCK RECORD CARD—FACE

(Use a new card for each lot received from a different source of supply)

Date Ordered	Date Received	Quantity Received	Unit	Price Per Unit	Total Price	Date Issued	Issued to Student	Amount Issued	Value	Balance in Stock

STOCK RECORD CARD—REVERSE

Orderliness

Require care in use of tools and equipment. Assign work places, tool and project supply drawers or cupboards and insist upon each student using his own tools, supplies and work places.

Discipline

Rigid adherence to the control of the Instructor, promptness, courtesy toward other students, a respect for their rights and property must be insisted upon. No equipment, tools, nor worked projects should be taken from the classroom without your permission. Visitors should be excluded except upon certain days at specified hours and only at those periods at the will of the Instructor. The schoolroom is a workroom, not a recreation spot.

Individuality

Encourage all students to develop their individual tastes and abilities in lines of work that particularly appeal to them. Do not discourage, more than school limitations prescribe, the desire that is certain to appear in some students to work out special projects of their own design. Charge for all materials used on such work at the cost to the school.

Instruction

The purpose of any textbook is to provide a plan whereby complete training in a given subject may be taught. It is impossible to accomplish by means of a textbook alone all that is usually outlined in the text. The Instructor must be a composite individual. He must interpret the text, demonstrate its application to the individual, explain in detail

the plans and definitions but briefly outlined in the textbook, drive home the underlying principles intended to be taught and lead the student step by step through the processes necessary to knowledge that can be but superficial at best. This calls for infinite patience, analytical ability and an unusual amount of inventive capacity. The majority of students, like older men and women, can be led but not driven. Leadership is the greatest asset of the Instructor.

Practical Continuation Work

Should you be in a town or city in which a modern commercial bindery is also located endeavor to arrange for frequent trips through that plant with your students. No more effective means can be found of firmly fixing a process in the minds of a student body than to show them that particular operation as it is performed in a working organization. Wherever possible and practicable an arrangement should be effected whereby advanced students may take up continuation work in a commercial plant during vacations or for a few hours each week. Attention must be given to the factory labor laws of your state in relation to minors and women under such a plan or difficulties may be encountered.

Endeavor to create a small faculty of expert binders, one in each branch of the trade, to come to your classroom at certain specified periods to lecture on their particular process and give practical demonstrations. Such practical assistance increases the interest in Bookbinding training, stimulates individual effort and insures a greater measure of success in well-rounded training.

Tests

The daily progress of the student provides ample opportunity for grading in knowledge attained, practical ability

and effort shown. Because of the mass of technical detail surrounding all phases of the trade it is advisable and quite necessary to give frequent tests by which to determine the degree of assimilation reached in the successive lessons. Test questions are provided with each lesson but may, at the discretion of the Instructor, be used as daily reviews and an accumulative test given between each four or eight lessons.

Supplementary Reading

It is well to require a certain amount of additional research reading, especially in the Intermediate and Advanced Grades. This should not be made difficult nor irksome and should be assigned with consideration as to the amount of practical work being done.

Notebook

In all three courses a notebook is essential. For that reason one of the first projects in each grade provides for a loose-leaf notebook cover or binder. All "Work and Instruction Sheets" should be on 8½ x 11 writing stocks punched to fit the binder covers to be made. A supply of blank leaves should be provided for the students who will desire to record many items that later will be helpful.

Materials and Supplies

In each course under each lesson and project will be found the material and supplies schedule for that project. Multiply that by the number of students in the group and you have the required quantities to be provided. Much time will be saved by having all materials in readiness for class work.

Where materials must be prepared by cutting, trimming, punching, etc., for which operations only one or two pieces of equipment are available it is well to apportion the preliminary work to different members of the class, rotating from period to period that each one may during the course gain experience on all operations.

In the early stages it has been demonstrated that group work is necessary and advisable. As the students progress more individual work can be developed until, after the preliminary lecture or demonstration preceding each project working, the student may be allowed to proceed "on his own" following the "Work and Instruction Sheet" while the Instructor watches, instructs and assists individually.

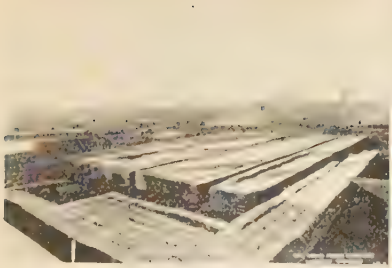
To the Teacher—As a final admonition before you begin class training permit the repetition of a previous statement. This text has been prepared after extensive research, considerable testing of educational theories, and with extreme care. Nevertheless it will not, of itself alone, be productive of satisfactory results unless *you* inject *your* personality and experience into each Project and Lesson.

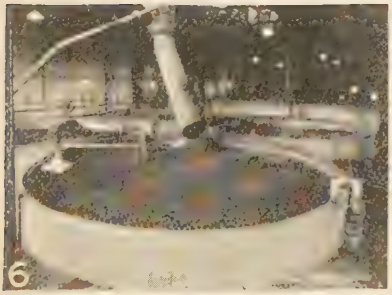
You will find several instances where the text may differ widely from your ideas of training and, doubtless, in some specific technical methods.

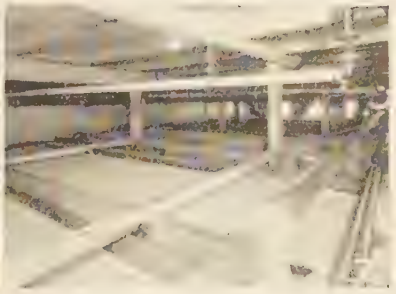
We have in mind the usual objection, of educators generally, to our plan of teaching *some* historical background *before* actual project work begins. Should you believe in starting students on actual project work *first*, returning to the historical and preliminary teachings *later*, that is a matter for your own discretion.

You may disagree with the text in the technique of trimming book edges and in whip, or overcast, stitching. Such rules have been established after careful study, although authorities may differ.

Above all, please keep constantly in mind, this text has been prepared for teaching *only* elementary principles and simple practices. The Intermediate and Advanced sections cover the more difficult technique.







A Modern Paper Mill

(Soda-Ash Process)

1–A Million Dollar Woodpile.
2–Washing and Sorting Logs.
3–Sorting Wood Chips.
4–The Chip Cutter.
5–The Steam Cookers (Digesters).
6–Digested Pulp Ready for Washing.
7–Washed Pulp Bleaching.

A Modern Paper Mill
(Soda Ash Process)

1–Beating the Pulp.
2–Jordanizing.
3–The "wet" end of Paper Machine.
5–"Dry" end of Paper Machine.

BOOKBINDING

Elementary Course

LESSON I

PAPER AND PAPER MAKING

To the Student—Bookbinding is made up of many operations and requires the use of many different kinds of materials. In order that you may properly understand the many operations and methods of performing them, it is necessary to take one step at a time else you will become confused and unable to make use of what you learn.

Bookbinding is the name applied to the process of preparing printed matter in some form so it may be fastened into a cover and thus made easy to handle, read and keep. It also includes making covers, decorating them in many ways and finally fastening the book into the cover.

Just as you must learn addition, subtraction and multiplication before you do problems in arithmetic, so you should learn the steps in binding before you try real bookbinding. Our first step is the study of *paper*.

Paper—This is a general name for the substance we write upon, the material in which we wrap packages and the most common material upon which books are printed. There are many different kinds of paper and each is used for some purpose for which it is best adapted.

Different Papers—In book-making the usual kinds of paper are:

1. Antique finish (rough, high bulking paper).
2. Machine finish (smoother, less bulky).
3. English finish (quite smooth but not glossy).
4. Supercalendered (machine finish with a higher gloss).
5. Coated or enamel (smooth glossy stock upon which to print pictures).
6. India, Bible, or thintext papers (very thin but tough).

In addition we will also meet these:

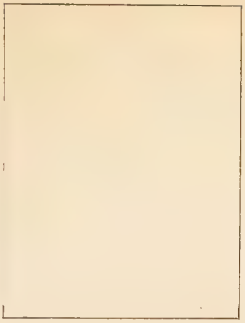
7. Cover papers (strong, tough, colored material).
8. Tag stock (also tough and very strong).
9. Flexible cover lining (made of rope hemp, jute or rag).
10. Manila or Kraft (usually wrapping paper).

How Paper is Made—Nearly all papers today are made from pulp obtained by cooking wood chips secured from pine, spruce, poplar or gumwood logs, in large steel digesters with very hot steam and a liquid made from soda-ash. After the chips have been "digested" the mass is very black in color due to the gums and resins in the logs and must be bleached by washing the pulp in a chlorine solution and afterward in clear water to remove the chlorine. The process of making pulp is a study in itself so we will go on to the actual paper making.

After the pulp is prepared it flows through machines called "beaters" where it is thoroughly broken up into very small particles called "fibres." These fibres then pass into "Jordans," which are pressure machines that still further digest it for the paper machine.

The paper machine is a huge affair some two hundred feet long. The pulp from the "Jordans" swimming in a great volume of water flows into a "stuffing box" which keeps an even supply of pulp ahead of the machine, from there through screens which prevent dirt, lumps and large pieces from getting into the paper and on to a rapidly moving "wire." This "wire" is really a moving endless belt from 88″ to 160″ wide and in sections about four inches across. These belt sections are full of tiny holes which let almost all of the water out so that by the time this rapidly moving sheet of wet pulp reaches the end of the "wire" it is dry enough to be called "wet paper" and to be picked up by a strong, soft woolen "blanket," or felt as it is called, which carries it through two sets of heavy rollers that squeeze still more water out of the pulp and make it strong enough to continue by itself over many large cylinders, each heated very hot by steam, which thoroughly dries the paper.

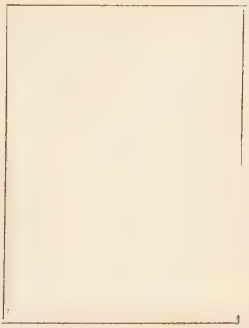
ANTIQUE



MACHINE FINISH

ENGLISH FINISH

SUPERCALENDERED



COATED

THINTEXT

COVER PAPER

TAG

ROPE

KRAFT

PAPER SAMPLES

At the end of the paper machine is a pair of squeezing cylinders also heated, called "nip-rollers," which give the paper a uniform thickness and add some smoothness to both sides of the web of paper. On the paper travels to another set of drying cylinders and then through many smooth steel rollers, called "calenders," also heated, which smooth and finish both sides of the paper.

Now the paper is finished and after running over some cold rolls is wound up on a huge roll to be later run through a machine which cuts it into whatever sizes are wanted.

Different grades of paper—The process of paper making is the same for all grades. Different finishes are obtained by changing the "squeezing" of the "nip-rolls" and the "calender rolls" and by putting on a "coating" for "super calendered" or coated papers. The color of paper is varied by bleaching the pulp pure white, leaving it "natural" or by putting dye into the "beater machine."

Grain of papers—Probably the most important point about paper making, aside from strength, that the bookbinder must always know, is the "grain" of the stock. You know that "grain" in a piece of wood means the direction in which the fibrous layers of the log or tree point. Just so with paper. As the pulp flows along through the machine the little "fibres" involuntarily turn themselves until they all point in the direction they are going. So you can understand that the "grain" of the paper will be along the paper web *not across it.*

Grain is a very vital part of paper. All printing and binding should be arranged so the "grain" of the paper when it gets into book form will *not* be across the page from left to right, but up and down the page parallel to the back of the book. Keep this always in mind. It is the first rule of good bookbinding.

The "grain" of all papers used in bookbinding should run parallel to the binding edge of the book, never across the page.

*Historical Review of Paper Making—The original and early history of paper as a writing material is involved in much obscurity. The art of making it appears to have been

*Encyclopedia Britannica, Vol. XX. Paper

practiced by the Chinese at a very distant period. Different writers have traced it back to the second century B.C. But, however remote its age may have been in eastern Asia, paper first became available for the rest of the world in the middle of the eighth century. In 751 the Arabs were attacked by Chinese, the invasion was repelled by the Arab governor and in the pursuit, it is related, several prisoners were taken who were skilled in paper making and who imparted their knowledge to their new masters. The extent to which it was adopted for literary purposes is proved by the comparatively large number of early Arabic manuscripts on paper which have been preserved dating from the ninth century. It was thought that the paper manufactured by the Arabs was composed of the wool from the cotton-plant, reduced to a pulp according to the method attributed to the Chinese, but recent investigations have shown that the material of the Arab paper was itself substantially linen. It seems that the Arabs and the skilled Persian workmen whom they employed at once resorted to flax as their principal material, afterwards also making use of rags, supplemented, as the demand grew, with any vegetable fibre that would serve, but cotton, if used at all, was used sparingly.

In tracing the development of paper or writing materials, Pliny tells us the ancient Egyptians as far back as 2000 years before Christ produced a material they called papyrus. He says they cut the stem of the papyrus plant in thin longitudinal strips and laid them side by side on a flat surface to the required width; another layer of shorter strips was laid on top and at right angles to this one, and the two layers were then soaked in the water of the river Nile. It is not probable the particular water mentioned was essential, although some statements have inferred the water of the Nile had supposed chemical properties which acted as a glue or cement to cause the two layers to adhere. It is more reasonable to assume that glutinous matter contained in the material itself was softened by the action of the water and acted as a cement. There are some indications that a paste or cement may have been actually added. In any event, the sheet was pressed, dried in the sun and polished with ivory or a smooth

shell. The sheets were then pasted together, end to end, forming a long roll about twelve to fifteen inches wide and oftentimes ninety to a hundred feet long.

The Chinese soaked pieces of bamboo in pits of lime-water and separated the fibres by pounding with small stones on a larger flat stone. The pulp thus prepared was spread out in a thin layer, dried and became a sheet of paper. Rag and other fibres were also used, the process being essentially the same as now used in making handmade papers.

In principle, paper making of today is the same. Methods have refined and machines increased the production, but we still take plant fibre, reduce it to the form of a pulp, spread it out, let it dry, and have a sheet of paper.

Paper was probably first brought into Greece through trade with Asia, but was probably not very extensively used in Greece until the middle of the thirteenth century, as there are no extant Greek manuscripts on paper which bear date prior to that period.

The manufacture of paper in Europe was first established by the Moors in Spain in the middle of the twelfth century, but on the fall of the Moorish power the manufacture declined and became of importance in Italy, which appears to have become the first great center of the paper-making industry, where mills were first set up in 1276. The earlier factories in Germany were set up about 1320. France owed the establishment of her first paper mills to Spain, where we are told the art of paper making was introduced as early as the year 1189. In the second half of the fourteenth century the use of paper for all literary purposes had become well established in all western Europe. The first paper mill in England was established early in the sixteenth century.

The first paper machine was invented in the year 1798 and until that time paper had been made entirely by hand, sheet by sheet. Machine-made paper has now gradually supplanted that made by hand for all except special purposes, such as bank note, ledger, drawing and other high-class papers.

Two principal classes of pulp are used in making paper: (1) Mechanical pulp or ground wood, and (2) chemical fibre.

Mechanical pulp is obtained by grinding the wood, after removing the bark, against a grindstone and under pressure, with the addition of water, reducing this wood fibre to pulp. This is the usual newspaper material. Chemical fibre is obtained by cutting the wood into chips, cooking the chips in a digester under steam pressure, extracting the rosin, carbon and other non-cellulose matter and retaining the wood fibre. About fifty per cent of the wood is lost in this process. There is a vast difference between the wearing quality of ordinary ground wood stock and chemical fibre stock.

In making book paper two kinds of wood pulp, known as sulphite and soda, are used. Sulphite is made from spruce, fir, hemlock or any of the coniferous or evergreen trees and soda from poplar, birch, gum or any of the softer deciduous trees. The methods of obtaining the pulp are approximately the same, except for the chemicals used. Spruce or other wood for sulphite is cooked with the acid compound of lime and sulphur gas, under steam pressure. Poplar or other similar wood is cooked with caustic soda under a higher steam pressure. The combination of the two fibres, each of which has certain qualities, makes a very good sheet.

Most book papers are now derived from wood pulp by either sulphite or soda processes; such processes do not produce the commonly called "ground-wood" papers. Ground-wood papers should never be used in books.

Selection of Paper Grades—You have learned from the first part of this lesson that papers for book work are divided into six main divisions:

Antique
Machine finish
English finish
Supercalendered
Coated
India or Bible.

You naturally wonder why so many grades. The selection of the grade of paper depends almost entirely on the type of book to be made.

Nearly all fiction (novels) is printed on antique stock

because of its light weight, bulk and softness. Except in the very best grades this paper has very little strength.

Machine finish papers are selected largely because of their smoother finish allowing more pages per inch of bulk, additional strength and because they permit the printing of line-cuts which would not show up well on antique stock.

The next step upward in finish is the English finish stock, which has a smoother surface than machine finish but still retains the dull sheen of the machine finished sheet. This is still low in bulk and permits the use of coarse screen halftone illustrations with more satisfactory results.

Following the English finish comes the supercalendered surface which still bulks the same or less than the machine finish or English finish and will take finer screen halftones.

Coated or enamel papers are machine finished sheets with a coating on either side of casein which give a high glossy surface and permit the finest effects in screen cuts and colors. Coated papers are also made with semi-dull, dull and cameo (dull, chalky surface) finishes.

India, Bible and other "thintext" papers are selected when the greatest number of pages must be kept within the very minimum of bulk. The common varieties of thin papers are really very thin grades of machine finish stock, while the better grades contain some rag stock mixed with the wood pulp and have more of a chalky cameo finish surface.

Papers are selected for books for one of three reasons: A Because of need for a certain bulk; B Because of use of illustration plates; C Because of both A and B and to keep bulk to a minimum.

To the Teacher—Arrange, if possible, a trip to a nearby paper mill; if not possible secure an exhibit of the processes of paper making and samples of the various grades and finishes for demonstration purposes.

QUESTIONS

1. What is paper?
2. What is meant by coated, antique, English finish paper?
3. What is grain in paper?
4. Should grain be considered?
5. Would you select antique paper for a school textbook such as a history?

Fig. 1—Testing Grain of Paper by Tearing. With Grain, Smooth Tear; Against Grain, Ragged Tear

LESSON II

USES OF PAPERS

Use of Papers—You have become familiar with various grades of papers, the processes of manufacture, and gained some idea of their selection for book work. Now we consider the four grades of papers much used in cover making, as cover materials and for wrapping or jacketing books.

Cover Papers—Cover papers are made in a manner similar to book stocks but of tougher ingredients and usually in a wide variety of colors and thickness. They are much used as covers, for the "end papers" (these will be discussed later) of books and for book jackets. Cover papers come in smaller sizes, as a rule, than book papers for two reasons, first, they are usually of heavier stock, hence handled in smaller sheets; second, as they are to be used for covers, linings or jackets they need not be printed in large sheets as is needed for the inside of the book where many pages must be printed at a time to save expense.

Cover papers, because of their wide variety of colors and finishes are useable for many things besides book work; as box coverings, desk blotter pad backs, album leaves, booklet covers, etc.

Tag Stocks—Tag stock because of strength is frequently employed as book and booklet covers, index file folders, envelopes and cartons in which to mail books, for index division leaves in catalogs and for a stiffening material for covers, over which paper or cloth may be glued.

Flexible Cover Lining—This is composed of rope waste or rag stock, is quite tough and most generally made use of as stiffening for covers, especially when a flexible cover is wanted, as it is pliable, may be bent or rolled, and returns to a flat position readily.

Manila and Kraft—Usually denote lighter weight tough wrapping stocks much desired for book jackets and wrappings.

Fig. 2—Testing Grain of Paper by Wetting Fold—With Grain, SMOOTH; Against Grain, WAVED.

There are many other grades and characters of papers all of which will be encountered during the course. We now have become familiar with those we shall use presently.

Cover, tag, rope and wrapping papers differ from book papers by being tougher, having a variety of colors and in seldom being used upon which to print books.

To the Teacher—Have on hand sample sheets of a variety of cover, tag, manila, kraft and flexible rope and rag stocks for demonstration. It is especially desirable to show different colors, weights and finishes of several makes or grades of cover papers.

Instruct students in methods used in determining grain in papers; lapping, folding, tearing, wetting fold. Explain carefully the necessity of more than one test on thin text and rag papers with nearly neutral grain.

PROJECT 1

Testing Grain of Papers, Folding

Materials: 1 Sheet each (per student).
$30\frac{1}{2}$ x 41—92 and 105 Antique, Grain $30\frac{1}{2}$.
33 x 44—122 Super, Grain 33.
25 x 38—50 Machine finish, Grain 38.
25 x 38—60 and 80 Coated, Grain 25.
25 x 38—20 or 24 or 30 Thintext or Bible, Grain 25.

Tools: Bone folder only.

To the Student—Select from the papers given you a sheet of antique stock $30\frac{1}{2}$ x 41 inches in size and the lighter in weight of the two sheets furnished.

1. Carefully determine which way the grain runs in this sheet.
2. Fold sheet in half and cut it apart carefully, securing two sheets $20\frac{1}{2}''$ x $30\frac{1}{2}''$.
   Now do the same with the heavier sheet of antique stock.
3. Next fold and cut apart each of these sheets. Keep the two weights carefully separated, until you have reduced the large $30\frac{1}{2}''$x41" sheets to as many sheets as can be secured $10\frac{3}{4}''$ x $7\frac{5}{8}''$ with the grain the $7\frac{5}{8}''$ way.

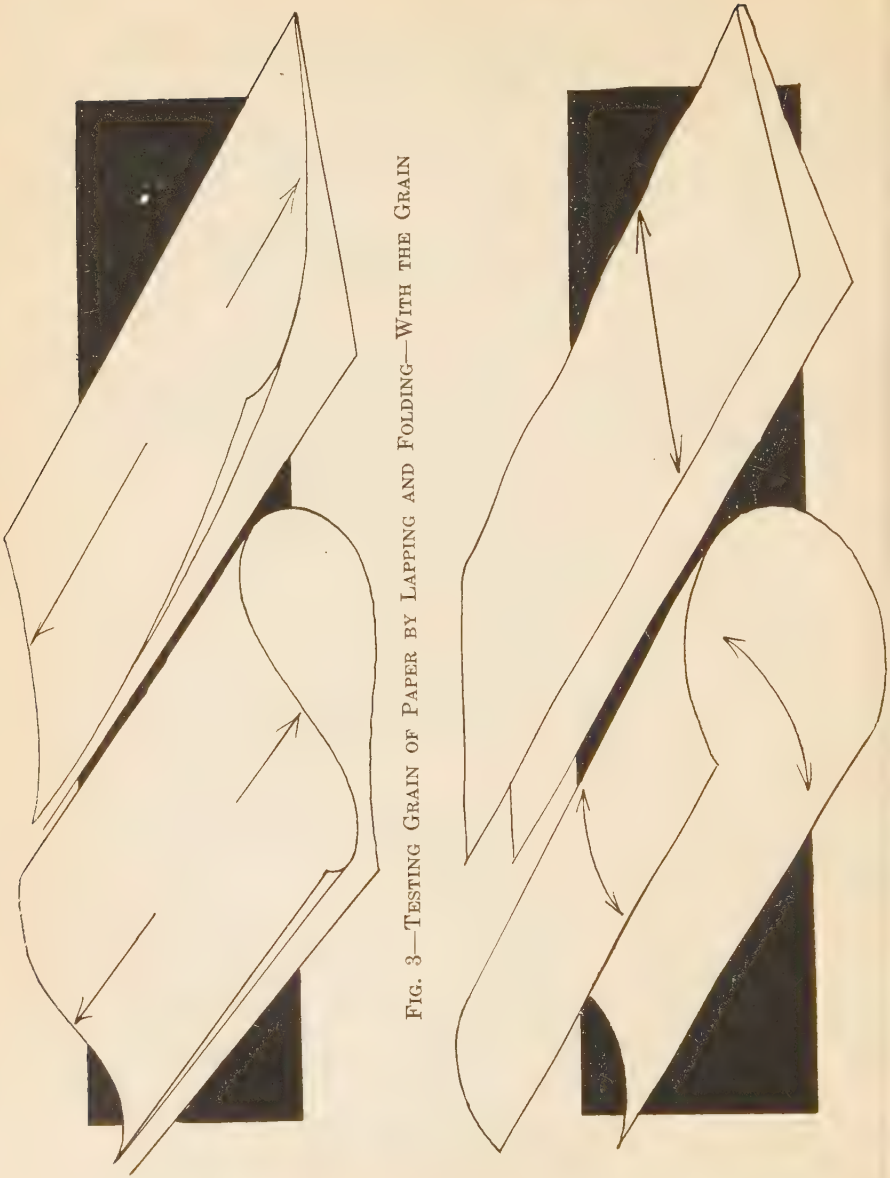


Fig. 3—Testing Grain of Paper by Lapping and Folding—With the Grain

Folding and cutting a sheet of book paper with the grain is easier than against the grain.

If the grain of the large sheets ($30\frac{1}{2}''$ x $41''$) ran the $30\frac{1}{2}''$ way you should now have 16 pieces of the thin and 16 pieces of the heavier stock available.

To the Teacher—Now instruct the student in the proper manner of folding each piece $7\frac{5}{8}''$ x $10\frac{1}{4}''$ to obtain a 4-page one-fold $5\frac{1}{8}''$ x $7\frac{5}{8}''$. Do this in single sheets and also by "bunch" folding and separating.

Folding consists of bending a larger sheet of paper across its shorter dimensions and firmly creasing with a bone folder.

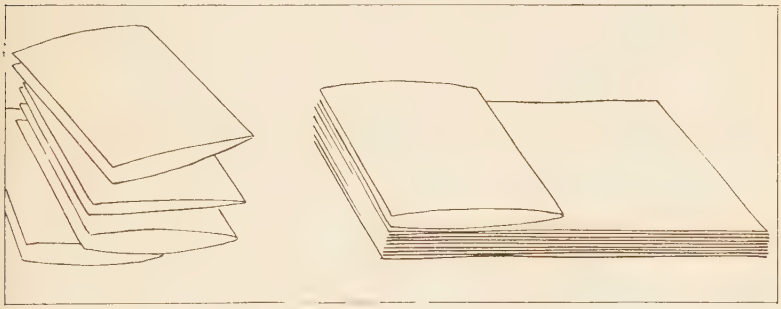


Fig. 5—Bunch or Single Folding

Now select your sheet of $33''$ x $44''$ supercalendered paper. Determine the grain; fold, cut apart, then reduce to pieces $11''$ x $8\frac{1}{4}''$ with grain the $8\frac{1}{4}''$ way, and finally fold as you did before. If the grain of this sheet ran properly, you will have 16 pieces each $5\frac{1}{2}''$ x $8\frac{1}{4}''$ folded once.

Any given size of sheet may, by first selecting the grain, be cut and folded down to some convenient book size.

Take the sheet of $25''$ x $38''$ machine finish paper:

1. Determine the grain.
2. Decide that you want to reduce this to pieces when folded once that will be $6\frac{1}{4}''$ x $9\frac{1}{2}''$ with the grain $9\frac{1}{4}''$ way.
3. If you do this correctly you will have 8 pieces when you have finished.

Now try the two weights of coated stock. Be careful to keep each weight separate.

1. Select the grain.
2. Cut this to pieces $12\frac{1}{2}''$ x $19''$ with grain the $12\frac{1}{2}''$ way.
3. How many pieces have you?
4. Fold these once with the grain.
5. You should have 4 pieces folded once; the final size being $9\frac{1}{2}''$ x $12\frac{1}{2}''$.

We have left the thinnest stock until the last. This is $25''$ x $38''$ in size. The selection of the grain will be more difficult here.

1. Select the grain—be very careful.
2. Cut this sheet into pieces $6\frac{1}{4}''$ x $9\frac{1}{2}''$ with the grain the $6\frac{1}{4}''$ way.
3. How many pieces have you?
4. Fold each one of these pieces once to obtain 16 single fold pieces $4\frac{3}{4}''$ x $6\frac{1}{4}''$ with grain $6\frac{1}{4}''$ way.

Thin papers have a less positive grain than antique or other heavier stocks.

Now lay aside, flat, and in an orderly manner the folded sections for use in the next lesson and put your folder away in tool drawer.

TEST QUESTIONS

1. What is bunch folding?
2. What is a section?
3. Should edges be squared in folding?
4. What is best "stroke" in cutting or "slitting" sheets apart?
5. What is the difference between cover and book papers?

LESSON III

PAPER SUBSTANCES

Paper Substances—You have, no doubt, wondered at the use of the terms 92 pound, 105 pound and the like. Paper is made on a weight basis. That is, a given number of sheets are said to weigh so many pounds. In order that a standard basis might be followed by paper mills, dealers and users, the size 25″ x 38″ was established as a basic size and five hundred sheets as a unit of measure. Thus all papers are made and sold starting from the basic size 25″ x 38″ for the sheet and so many pounds "substance" to the "ream" of 500 sheets. Paper manufacturers and dealers are now endeavoring to substitute a 1000-sheet unit in place of the 500-sheet ream count basis. The basic weights are the same, i.e., 1000 sheets 25″ x 38″ on a 50-pound basis would weigh 100 pounds to the unit.

The table shown on page 104 indicates the comparative weights of different sizes of papers all based on 500 sheets to the ream, starting from a 25″ x 38″ size.

The basic standard of book papers is 25″ x 38″ in size and 500 sheets to make a ream.

Because different sizes of books would not "cut" economically from the basic size 25″ x 38″, various standard sizes have been evolved, all on the same basic weight, in order that any desired size of book might be secured to advantage.

Paper mills will make up, on request, special size sheets to fit requirements, provided the quantity needed is sufficient to warrant such procedure. For the purposes of these lessons we shall adhere to standard sizes.

If you have a paper 25″ x 38″ in size and weighing 50 pounds to the ream of 500 sheets it naturally follows that a sheet $30\frac{1}{2}$″ x 41″ or 33″ x 44″ in size on the same basic weight must always weigh in proportion. By referring to the table

this can be easily determined. Later on you will learn how to figure special sizes and weights.

Different finishes produce difference bulks to the same number of sheets. This will also be taken up later.

The weight of any size of paper can be calculated if the basic weight in size 25″ x 38″ is known.

PAPER
TABLE OF COMPARATIVE WEIGHTS OF STANDARD SUBSTANCES

Sheet Size	Weight Per Ream of 500 Sheets							
25 x 38	40	50	60	70	80	90	100	120
20 x 30	25	32	38	44	51	57	63	76
22 x 28	26	32	39	45	52	58	64	78
22 x 32	30	37	44	52	59	67	74	89
23 x 33	32	40	48	56	64	72	80	96
24 x 36	36	45	55	64	73	82	91	109
28 x 42	50	62	74	87	99	111	124	149
28 x 44	52	65	78	91	104	117	130	156
30 x 40	51	63	76	88	101	114	126	152
30½ x 41	53	66	79	92	105	119	132	158
31 x 42	55	69	82	96	110	123	137	164
32 x 43	58	72	87	101	116	130	145	174
43 x 44	59	74	89	104	119	133	148	178
33 x 44	61	76	92	107	122	138	153	183
33 x 46	64	80	96	112	128	144	160	192
34 x 45	64	80	97	113	129	145	161	193
34 x 46	66	82	99	115	132	148	165	198
36 x 48	73	91	109	127	146	164	182	218
39 x 54	89	111	133	155	177	200	222	266

You have already handled several different sizes, weights and finishes of papers all of which were selected to teach you some of the varieties.

Cover and other specialty papers differ from book papers in basic sizes and weights. Cover papers usually come in 20″ x 25″, 23″ x 33″ and some in 25″ x 38″, or 26″ x 40″. Other peculiarities of cover and different papers will be taken up as we reach them.

PROJECT 2

Inserting—Preparing Signatures for Booklets

Now we have an assortment of one-fold sections of different papers. Our next step is to insert one into the other until we have obtained a section or "signature."

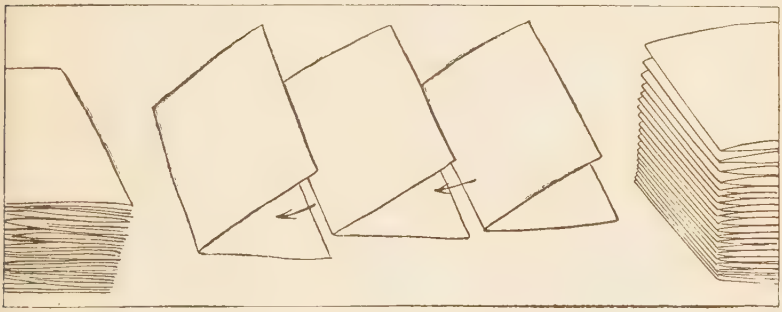


Fig. 6—Inserting

Inserting consists of opening a folded section and placing another section within the first or succeeding sections until a desired number of pages are obtained.

You had:

16 one-fold sections of antique 92 pound.
16 one-fold sections of antique 105 pound.
16 one-fold sections of supercalendered 122 pound.
8 one-fold sections of machine finish 50 pound.
4 one-fold sections of coated 60 pound.
4 one-fold sections of coated 80 pound.
16 one-fold sections of thintext stock.

The number of sections you will insert to obtain the desired number of pages in a complete section or signature

must now be determined. Naturally you do not want a section that is too bulky or unwieldy.

1. Try inserting the 92 pound weight antique sections until you have 16 pages or four sections in a "signature." Be sure to push each one-fold neatly into the "valley" of the section into which you "insert" it. Does this make a neat, compact section?
2. Now try it with the 105 pound stock.
3. Observe and compare the result. You will note the bulkier appearance of the 105 pound paper "signature."

A "signature" is a series of sections inserted one within the others to give a convenient, workable unit for binding.

4. Make all your 92 pound antique sections into 16 page 4 section signatures.
5. Put the 105 pound antique sections into 16 page 4 section signatures likewise.
6. Follow the same procedure with the supercalendered 122 pound sections.
7. Next insert all 8 of the 50 pound machine finish paper sections to make one 32 page signature. Observe the result.

Thin papers may be made up into signatures of 32 pages while the heavier antiques and coated work best in 16 page signatures.

8. Coated papers are more stiff and brittle in texture than the softer materials. Insert the 60 pound coated sections until you have one 16 page, 4 section signature.
9. Make the 80 pound coated into 8 page signatures. Note the comparison in bulkiness with the 60 pound signature.
10. Insert your thintext sections, all 16 into one compact 64 page signature. Observe that this signature when completed is little, if any, more bulky than the 32 page machine finish section just completed.

Thintext stocks may be worked in 64 page sections if necessity requires.

Now lay aside carefully your sections:

4—16 page signatures 92 pound antique.
4—16 page signatures 105 pound antique.
4—16 page signatures 122 pound supercalendered.
1—32 page signature 50 pound machine finish.
1—16 page signature 60 pound coated.
2— 8 page signatures 80 pound coated.
1—64 page signature thintext.

You will need them for the next lesson.

TEST QUESTIONS

1. What is paper substance?
2. Name standard size and ream count.
3. Why do we need different paper sizes?
4. What is inserting?
5. Explain a signature.

LESSON IV

SELECTION OF PAPERS

Selecting the Paper Size—In order to save time and effort it is the usual custom to fold larger sheets *direct.* into signatures instead of first cutting the large sheets down to single fold sizes. To do this requires a knowledge of:

1. Grain of paper to be used.
2. Size of folded signature desired.
3. Thickness and folding possibility of paper used.
4. Number of pages to the completed book or booklet planned.
5. Whether a side fastened or "saddle" stitch or tie is to be used to hold the booklet together.

You already know how to determine which way the grain of the paper runs.

The size of the folded signature you want depends on what size the finished booklet is to be. For example, should you intend to make a booklet 5″ wide by $7\frac{3}{8}$″ high and plan on having all the edges smoothed by cutting after you have fastened it together, you must allow a margin at the top, front and bottom edges of the section for your trimming. This trimming margin must be at least $\frac{1}{8}$″ for each edge and it is best to allow $\frac{3}{16}$″ for the bottom edge where possible. Thus it follows that $5\frac{1}{8}$″ x $7\frac{5}{8}$″ would be the minimum folded size for your signature. You have seen that to make a one-fold section of this size requires a piece of paper $10\frac{1}{4}$″ x $7\frac{5}{8}$″ and that this can be cut sixteen times out of a sheet $30\frac{1}{2}$″ x 41″.

Having determined the folded, untrimmed size of the signature multiply each dimension by 2, 4 or 8 to get the full size sheet needed.

Example: A folded section $5\frac{1}{8}$" x $7\frac{5}{8}$" untrimmed is desired,

Size: $5\frac{1}{8}$ x $7\frac{5}{8}$	$5\frac{1}{8}$ x $7\frac{5}{8}$	$5\frac{1}{8}$ x $7\frac{5}{8}$
x x	x x	x x
2 2	4 2	4 4
$10\frac{1}{4}$ x $15\frac{1}{4}$	$20\frac{1}{2}$ x $15\frac{1}{4}$	$20\frac{1}{2}$ x $30\frac{1}{2}$
Gives 4 pages on each side of sheet or an 8 page signature when folded twice.	Gives 8 pages on each side of sheet or a 16 page signature when folded three times.	Gives 16 pages on each side of sheet or a 32 page signature when folded four times.

In your next project you will be taught how to make these several folds to obtain desired signatures.

The thickness of the paper to be used largely determines the number of pages to be made into each signature. You do not want stiff, unyielding signatures making a booklet refuse to stay closed and lie flat when you have finished. To avoid this result you must do one of two things:

1. Select a paper thin enough to fold into one section of the required number of pages, or;
2. Fold the paper into several signatures of fewer pages and after folding each separate section, insert two or more sections to secure the desired number of pages in the final signature.

Thick, stiff papers do not fold easily into signatures of many pages and will not usually stay closed and flat after fastening.

Here is a simple scale of paper weights and finishes to help you—basic size 25" x 38".

Paper Weight	50-lb.	60-lb.	70-lb.	80-lb.	90-lb.	100-lb.
FINISH	Fold best in signatures having these pages:					
Antique	16	16	16	16	8	8
Machine finish	32	16	16	16	16	8
English finish	32	32	16	16	16	8
Supercalendered	32	32	16	16	16	16
Coated	16	16	16	16	8	8
Thintext 30 to 40-lb.	32	..	..	..	..	..

This scale is not infallible as some papers are softer than others in the heavier weights.

The number of pages you intend the finished booklet to contain largely determines the pages to the signature irrespective of the thickness and character of paper. For example, an 8 page section can be made of any paper designated, and a sixteen usually if it is advantageous to have one signature to the completed booklet. A 32 page booklet would be made up of a thinner stock than an 8 or 16 page section as the more pages the less bulkiness to the individual leaf or section is desirable.

An 8, 16, 32, or 64 page booklet would be made up of paper that was much lighter to the sheet for 32 or 64 pages than for 8 or 16 pages. To gain bulkiness one adds weight, to keep down bulk one reduces weight of paper used.

If the booklet is to be fastened by the "saddle" type of tying it is advisable and necessary to have all pages in one signature, else one cannot stitch or tie once through the back and hold all sections together. Should we plan to fasten through from front page to back page, on the "sides," near the back, it does not matter how thick the paper is, nor how many signatures, so long as we can punch or pierce holes through which to pass cord or laces.

Thin booklets may be made-up in one signature (even though several sections are inserted) while thick, bulky booklets must be made-up of several separate signatures one above the other and fastened through "from front to back."

In your next project you try out these rules you have just acquired.

To the Teacher—In studying this lesson it is wise to follow the teachings step-by-step, demonstrating each as it is taken up and discussed.

TEST QUESTIONS

1. How do you find the best large size sheet of paper for your booklet?
2. What paper would you select for an 8 page, a 16 page and a 32 page booklet for easy construction?
3. If booklet is to be trimmed on three sides, what allowance must you make for trimming?
4. Would you attempt to fold an 80 pound antique sheet direct into a 32 page signature or first fold into several 8 or 16 page sections and insert?
5. Do thick, stiff papers make neat booklets?

First Fold—Short Way of Sheet

Second Fold—At a Right Angle to the First Fold

LESSON V

FOLDING PAPERS—PREPARING SIGNATURES

To the Student—In the preceding lesson you learned how to cut and fold text papers and to insert those single fold sections into signatures. In this project you will be taught the proper methods of selecting papers in larger sizes and folding direct into signatures, thus preparing for booklet building in the same manner as if printed sheets were used and prepared for hand binding.

PROJECT 3

Booklet Making

Materials: 2 Sheets 25″ x 38″—50 pound machine finish, Grain 38″.
2 Sheets 30½″ x 41″—105 pound coated finish, Grain 30½″.

Tools: Bone folder.

We have decided to make our first group of booklets. We will divide the sizes into:

1. 1 Booklet 6″ x 9″ when trimmed; 32 pages of 50 pound machine finish stock.
2. 1 Booklet 9″ x 12″ when trimmed; 16 pages of 50 pound machine finish stock.
3. 1 Booklet 5″ x 7⅜″ when trimmed; 32 pages of 105 pound coated.
4. 1 Booklet 5″ x 7⅜″ when trimmed; 64 pages of 105 pound coated.

In each case the paper has been selected for you. Be careful. There is a peculiar difficulty in making one of these booklets. The grain of the paper is not planned properly. See if you can locate the incorrect one.

Let us proceed:

1. Determine the grain.
2. See how many pages you must obtain from each sheet to make up your booklets.
3. Cut and fold the sections.

Slitting the Second Fold Half Way Across

Third Fold—At a Right Angle to the Second Fold

You have learned the proper method of cutting large sheets into small pieces, making one fold in each small sheet thereby obtaining four page sections and then inserting these sections to secure the desired signature.

Here is a new method. It is also called *folding*, but by means of several folds in the same sheet, instead of one, we obtain the required signature without inserting.

Prepare for your first booklet.

1. Take a sheet 25″ x 38″—50 pound machine finish.
2. You want a booklet 6″x 9″ when finished to contain 32 pages.
3. 6″ x 9″ size requires $6\frac{1}{8}$″ x $9\frac{1}{4}$″ before trimming;

$6\frac{1}{8}$ x $9\frac{1}{4}$	$6\frac{1}{8}$ x $9\frac{1}{4}$	$6\frac{1}{8}$ x $9\frac{1}{4}$
x x	x x	x x
2 2	4 2	4 4
Equals: $12\frac{1}{4}$ x $18\frac{1}{2}$	$24\frac{1}{2}$ x $18\frac{1}{2}$	$24\frac{1}{2}$ x 37
or: 4 pages on each side of sheet or 8 pages to signature.	or: 8 pages on each side of sheet or 16 pages to signature.	or: 16 pages on each side of sheet or 32 pages to signature.

4. We need $6\frac{1}{8}$″ x $9\frac{1}{4}$″ folded size, with the grain the $9\frac{1}{4}$″ way. We find the grain of the 25″x38″ sheet to be the 38″ way. So far excellent.
5. Let us first try an 8 page signature fold. To do this we must:
6. First cut the 25″ x 38″ sheet into 4 parts each $12\frac{1}{2}$″ x 19″ (as this size is larger than we require, consequently quite all right).
7. Now we must fold each of these 4 pieces to get 8 pages to each, which will be $6\frac{1}{4}$″ x $9\frac{1}{2}$″ folded. Here is the method:

Lay the 4 sheets one on top of the other, so all four are exactly square with each other; have one 19″ edge toward you; lift the right hand corner of the top sheet, carry it across and square it with the lower left hand corner, hold it in this position with the left hand; with your bone folder held in the right hand crease the fold with one stroke *away from* you. (See Figs. 7, 8 and 9.)

Next, put the end of the folder (held in right hand) firmly on the folded sheet about half way up the folded edge; pick up the upper right hand corner of the folded sheet, bring it toward you until you can bring the corners together; hold it there and removing bone folder from inside the sheet, crease

Fig. 7—Position of Flat Sheets to be Folded

You are using blank (unprinted) paper. If printed sheets were used you would need to pay attention to the page numbers. For the present blank paper will do and later on you will learn about folding printed sheets.

the new fold firmly from right to left and turn the now two-fold sheet "cat-corner" toward you. (See Figs. 10, 11 and 12.)

Now you have an 8 page section with two folds. Fold all four pieces like this.

An eight page section may be obtained by folding with two right angle creased folds any desired size of paper.

You have four eight page sections. Insert them into each other until you have obtained a thirty-two page section composed of four eight page sections each inserted into the others.

Let us attempt the second booklet. This is also 25″ x 38″ - 50 pound machine finish stock and calls for a 16 page booklet 9″ x 12″ when trimmed. You proceed as before.

A 9″ x 12″ booklet requires at least $9\frac{1}{8}$″ x $12\frac{1}{4}$″ in the folded signature before trimming:

$$\begin{array}{ccc} 9\frac{1}{8} & \text{x} & 12\frac{1}{4} \\ \text{x} & & \text{x} \\ 4 & & 2 \end{array}$$

Equals: $36\frac{1}{2}$ x $24\frac{1}{2}$
or: 8 pages on each side of the sheet or 16 pages to the signature.

As our paper is 25″ x 38″ and we need $24\frac{1}{2}$″ x $36\frac{1}{2}$″ our paper is ample in size.

Have we forgotten something? Yes, the grain. Is this grain right? Right or wrong let us see what occurs if we use it as it is.

As the full sheet 25″ x 38″ will just make a 16 page section of itself, if we could fold it without cutting it would be ideal.

Proceed as before:

1. Fold the sheet once from right to left starting with one long edge toward you.
2. Place corners together *exactly*.
3. Crease with bone folder the right-hand fold.
4. Turn the sheet "cat-corner."
5. Place your folder in position, bring over the back edge of the section toward you to the front edge, remove your folder and crease the fold.

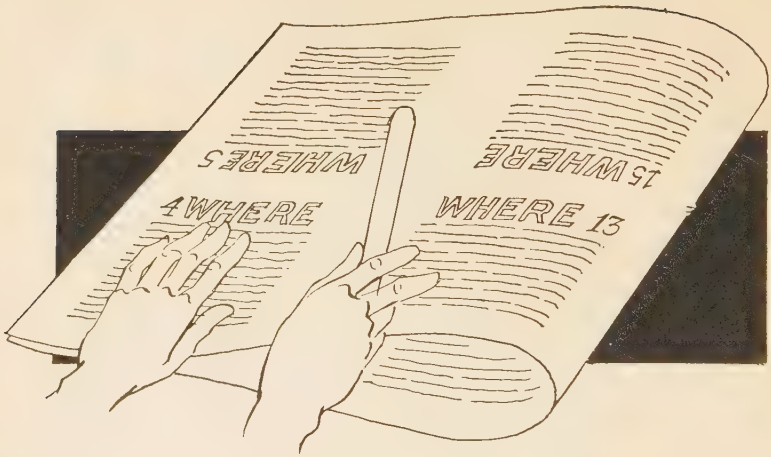


Fig. 8—First Fold

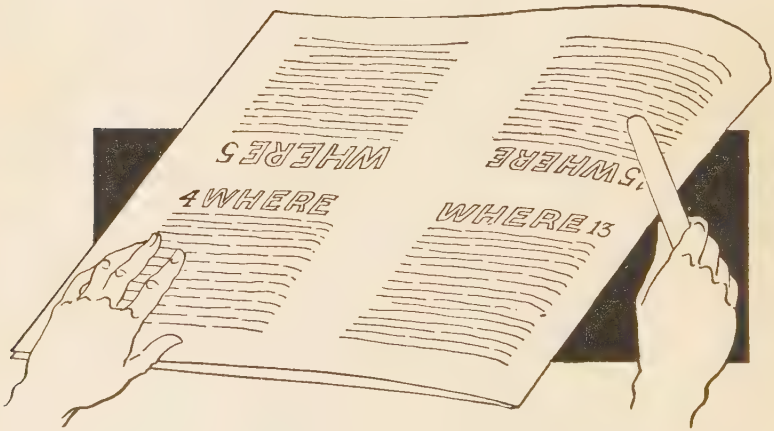


Fig. 9—Creasing First Fold

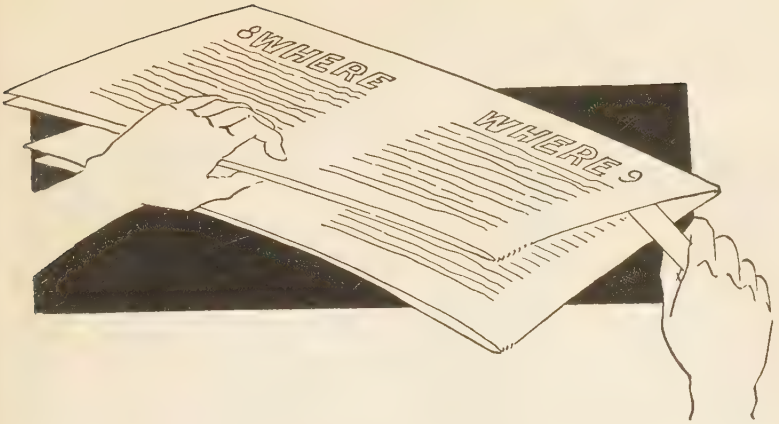


FIG. 10—SECOND FOLD

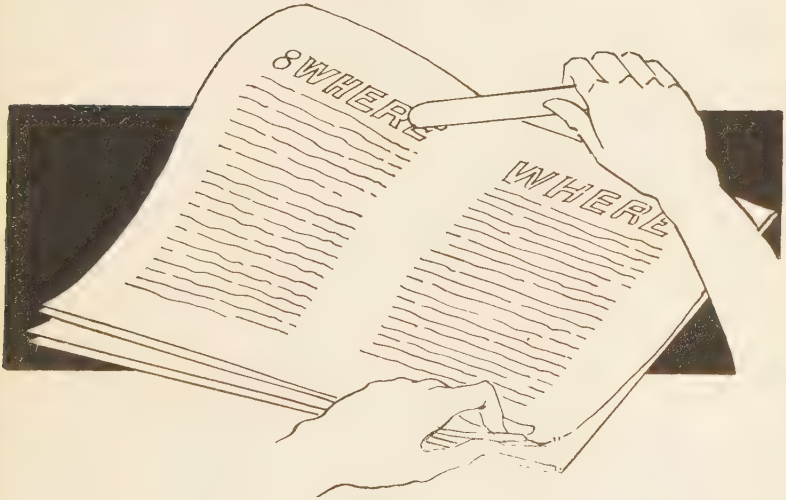


FIG. 11—CREASING SECOND FOLD

Now you have a large eight page section as before; thus:

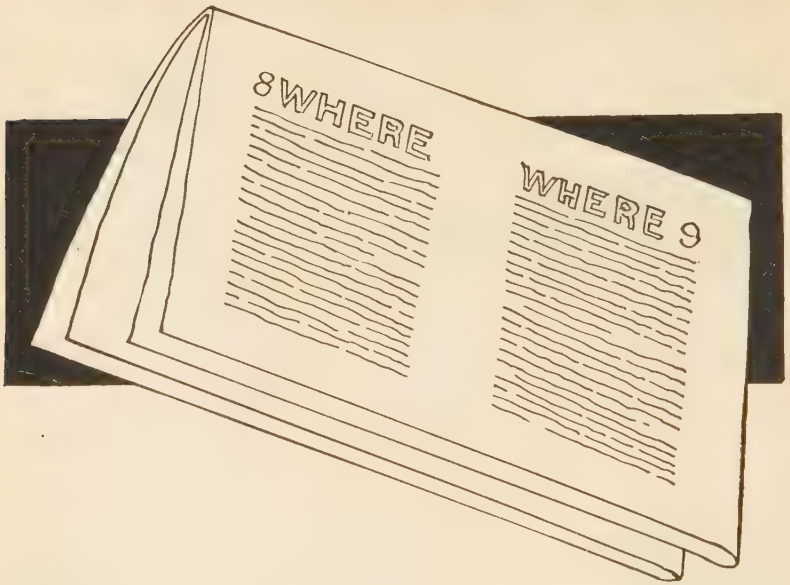


Fig. 12—Completed Eight Page Section

6. Turn this "cat-corner" again until the corner where both folds meet is nearest you. (See Fig. 13.)
7. Insert bone folder and "slit" (cut) open the second fold on the two leaves a bit more than half way down the fold.
8. Remove the folder, place the end of folder against the flat section near the edge just slit open, with folder held flat, with left hand bring over the far side of the section toward you, until corners are positioned, then remove folder and crease folded edge. In doing last operation you will again turn section "cat-corner" so that the now finished section is "head" toward you. (See Figs. 13 and 14, also views on pages 112 and 114.)

A 16 page section may be obtained by folding with three right angle, creased folds and slitting open the second fold before making the third fold, on any desired size of paper.

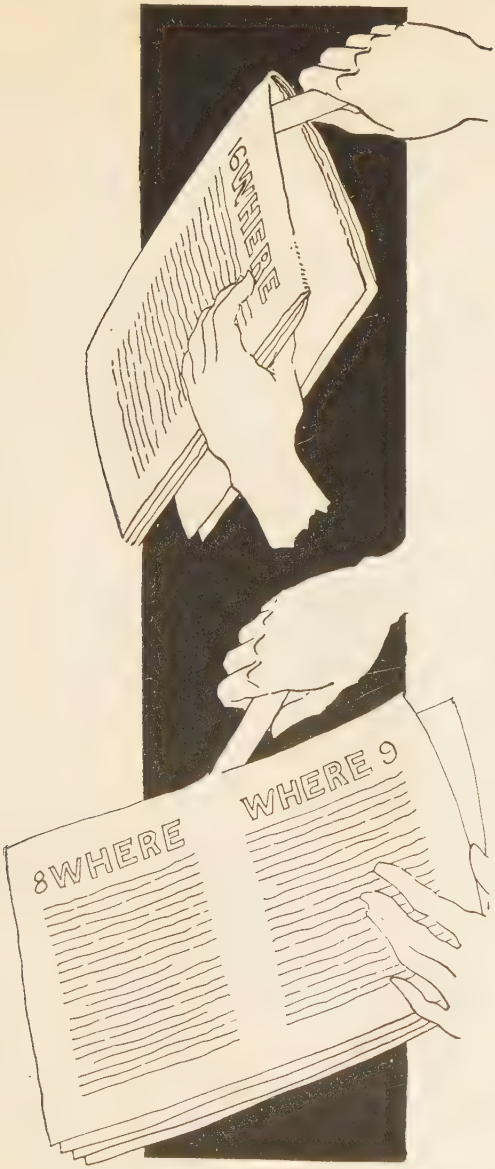


FIG. 13—SLITTING SECOND FOLD AND MAKING THIRD FOLD

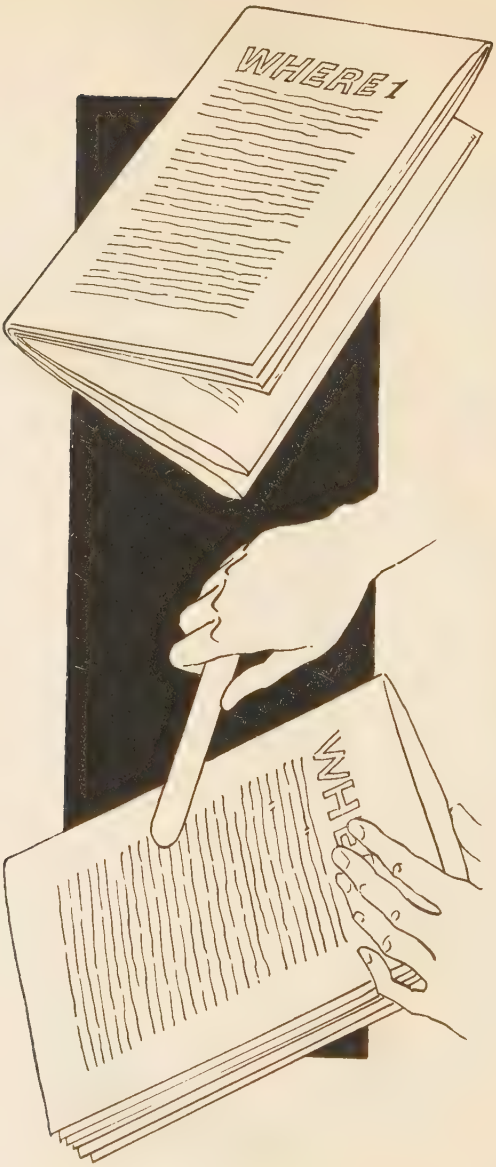


Fig. 14—Creasing Third Fold and Completed Sixteen Page Section

You are now able to fold a 16 page, an 8 page and a 4 page signature.

Proceed with Booklets Nos. 3 and 4 as you did with No. 2, folding 16 page signatures. Work cautiously, thinking out your plan before cutting and folding the sheets. After folding signatures insert as many as needed to make the Booklet desired.

Save these sections and store carefully to be used in later projects.

Folding may be accomplished by a series of folds, one or more, each fold at a right angle to the previous one; slitting of fold before the last one is needed to make the last fold easily.

To the Teacher—It is impossible to show in detail in drawings or photographs the exact movement of the hands and sheet in effecting the 8 and 16 page folds. It will be well for you to demonstrate position and action thoroughly before allowing the students to proceed with project.

TEST QUESTIONS

1. What is a signature?
2. Explain the plan of making the two folds in an 8 page signature.
3. How do you fold a 16 page signature comfortably and with speed?
4. What more do you do to secure a 16 page signature than for an 8 page section?
5. Is a 32 page signature fold difficult? Why?

LESSON VI

SELECTING A COVER

Selecting a Cover—The selection of cover material for a booklet requires thought and care. You must consider several points:

1. What type of booklet am I making—simple, strong, durable or elaborate, delicate, for first appearance only?
2. Have I followed any color scheme or is color and texture of cover essential to portray my plan?
3. What color will make an attractive and serviceable covering?
4. Must I be careful of cost?
5. What cover papers can I select from?

You should reason out answers like these:

1. One must settle upon the type of cover. On our first attempts we shall limit ourselves to a plain "jacket" cover of two different thicknesses. With these two weights we can produce both simple and durable as well as more elaborate effects.
2. As we have only plain papers inside any color and texture will serve our purpose.
3. Darker colors are more serviceable and lighter colors more delicate—so we will try both.
4. These booklets are intended to be inexpensive so we must use moderate priced papers.
5. We will limit ourselves to:
   Baypath—antique finish.
   Buckeye—ripple finish.

Cover Paper Finishes—Most cover papers come in a variety of finishes; plain antique (an eggshell surface); plate (very smooth); crash (a linen finish); ripple (an irregular surface like the wavy surface of water disturbed by wind), are some of the common finishes. Moiré (watered silk), embossed grains, and elaborate two-tone effects are also obtainable in more expensive grades.

Grain—Cover papers have a noticeable grain and the selection of covers that cut with the grain *parallel* to the back-edge is absolutely essential in order that clean, sharp folds may be made and the cover material show pliability and a desire to "hug" the booklet.

Selection of Size—As the majority of cover papers come in one or all of the four standard sizes:

20″ x 25″
23″ x 33″
25″ x 40″
26″ x 40″

it is necessary to determine what size our cover will be before selecting the size sheet of cover from which we will cut our requirements. In making a few booklets this is not so necessary as if we were preparing for several hundred or many thousands.

In Lesson III, Project 2, you made up several "insides" for booklets. Select from these:

A 1–16 page signature 5⅛″ x 7⅝″ Antique 92 pound.
B 1–16 page signature 5⅛″ x 7⅝″ Antique 105 pound.
C 1–16 page signature 5½″ x 8¼″ Super 122 pound.
D 1–32 page signature 6¼″ x 9½″ Machine Finish 50 pound.
E 1–16 page signature 9½″ x 12½″ Coated 60 pound.
F 1– 8 page signature 9½″ x 12½″ Coated 80 pound.
G 1–64 page signature 4¾″ x 6¼″ Thintext.

PROJECT 4

Cover Selection and Preparation

Materials: Booklets from Lesson III, Project 2.
2 Sheets 20″ x 25″ Cover—50 or 60 pound.
2 Sheets 20″ x 25″ Cover—80 or 100 pound.
Tools: Rule.
Pencil.
Straight-edge.
T-Square.

Let us select the styles in which we propose to bind these booklets. Let A, B, and C demonstrate the usual type of

booklet on which the cover will, after binding, be cut to the same size as the booklet itself; E, F, and G show an "overhanging" or overlapped cover (the cover to extend beyond the edges of the booklet $\frac{1}{8}''$ at top, front and foot); and D to be a bit more elaborate and have a "tuck-in flap" style.

Now comes the figuring of the size of cover material.

A and B are $5\frac{1}{8}''$ x $7\frac{5}{8}''$ in size folded; they are to be "flush cut" so the "flat" open size of the booklet should be large enough for the cover size. To be safe let us allow an extra

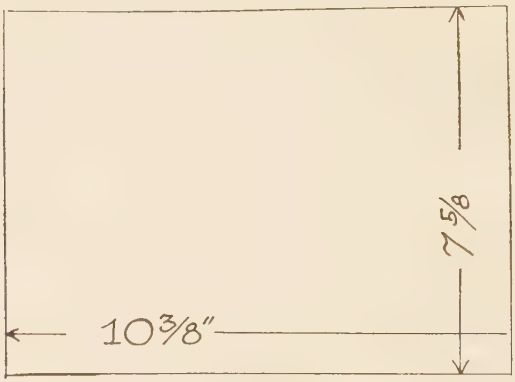


Fig. 15

$\frac{1}{8}''$ in the width and settle this size as $10\frac{3}{8}''$ x $7\frac{5}{8}''$ with the grain $7\frac{5}{8}''$ way. (Fig. 15.)

C is the same style but larger, so we need 11" x $8\frac{1}{4}''$ (plus the $\frac{1}{8}''$ in the width) making $11\frac{1}{8}''$ x $8\frac{1}{4}''$, with the grain the $8\frac{1}{4}''$ way. (Fig. 16.)

E and F are to be overhang or overlapped style. Here more careful measurements are necessary. Overhanging covers are usually put on booklets which have first been "cut" or "trimmed" on three edges to final size before affixing cover. Sometimes when the inside booklet is purposely made of paper with a rough or "deckle" edge, the top of the booklet only is trimmed and the side and foot edges left natural.

"Deckle" edge on paper is a natural rough or "feather" edge obtained while making the paper, much used for elaborate booklets.

We will plan on E and F to cut the three edges before we put on the covers to the sizes we decided on earlier in our work. This size was 9″ x 12″ and opened flat 18″ x 12″. As we intend the covers to project $\frac{1}{8}$″ on all three sides our cover size will be 18¼″ x 12¼″, grain 12¼″ way. (Fig. 18.)

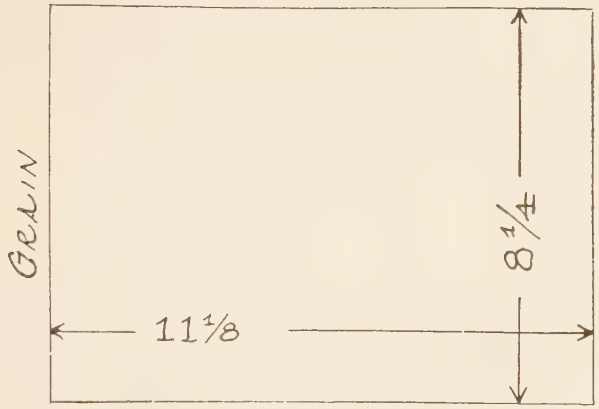


FIG. 16

D is to be a special style known as "tuck-in flaps." This usually means an "overhang" also to improve the appearance. As in E and F we will trim the booklet itself first to our desired size which will be 6″ x 9″. We want a $\frac{1}{8}$″ overhang on all edges and the two flaps to tuck in on front edges should be at least 2½″ each, so this size will be the book size, opened flat, 12″ x 9″, plus $\frac{1}{8}$″ for overhang for each edge and 2½″ for each of two flaps or 17¼″ x 9¼″, grain 9¼″ way. (Fig. 17.)

G is also an overlap style without "flaps" and is to be 4½″ x 6″ booklet size. This means 9″ x 6″ opened flat, plus $\frac{1}{8}$″ for overhang for each edge, which gives us a size 9¼″ x 6¼″ grain 6¼″ way. (Fig. 19.)

The size of a cover for "flush" cut booklet is the untrimmed size of the booklet when laid out open flat; for overhang cover $\frac{1}{8}''$ more on each edge; flapped cover $2\frac{1}{2}''$ for each front edge and $\frac{1}{8}''$ each overhanging edge additional.

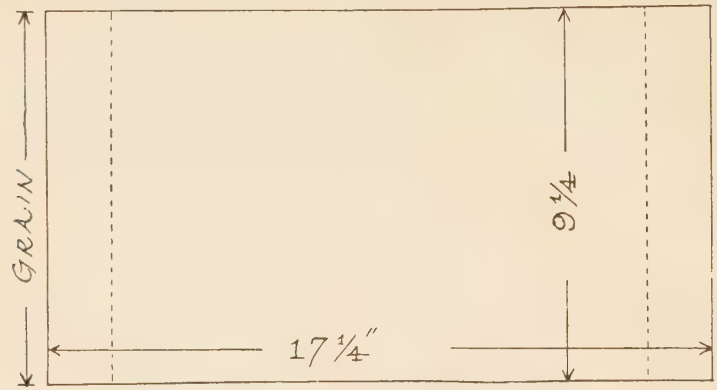


Fig. 17

Now select your covers to suit the several booklets; first it is best to make a memorandum of what you require like this:

A and B will require 2 pieces $10\frac{3}{8}''$ x $7\frac{5}{8}''$, grain $7\frac{5}{8}''$ way. These are flush cut—can use thin or heavy stock; will use thin stock.

C —Will require 1 piece $11\frac{1}{8}''$ x $8\frac{1}{4}''$, grain $8\frac{1}{4}''$ way. This will take either thin or heavy—will use heavy.

D —Will require 1 piece $17\frac{1}{4}''$ x $9\frac{1}{4}''$, grain $9\frac{1}{4}''$ way. This is a "tuck-in flap" style and should use thin stock.

E and F—Will require 2 pieces $18\frac{1}{4}''$ x $12\frac{1}{4}''$, grain $12\frac{1}{4}''$ way. These are "overhang" style hence need heavy stock.

G —Will require 1 piece $9\frac{1}{4}''$ x $6\frac{1}{4}''$, grain $6\frac{1}{4}''$ way. This is an "overlap" style, booklet is thin paper, should use a thin or medium weight stock.

Paper covers for booklets should be sufficiently thick and stiff to protect booklet, work easily, and be durable.

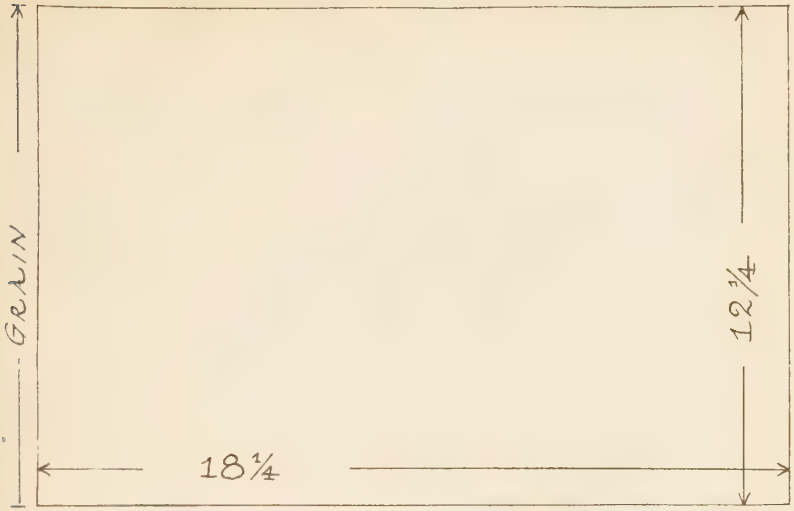


FIG. 18

From your supply of cover papers select the weights, colors, finishes and especially the *size of sheet* from which you can cut the covers needed without undue waste. *Lightly*

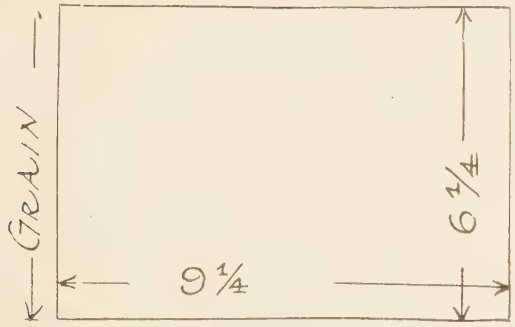


FIG. 19

mark in pencil on the reverse side of each sheet how you intend to cut out the cover pieces.

To the Teacher—In making up only a few booklets it will be found that the cover sizes required do not always cut out economically. Stress this point although necessity requires their use. Particularly emphasize the selection of grain, weight and color for different sizes and types of booklets.

Grain in cover papers is an important item in making pliable covers that do not tend to break away from booklet while in use.

TEST QUESTIONS

1. Name several finishes in cover papers.
2. Has cover paper a grain—how can you determine grain?
3. What is the rule for determining cover sizes?
4. Are stiff or soft papers best for "overhanging" style booklets?
5. Is it well to "plan" every Booklet. Why?

LESSON VII

MECHANICAL DRAWING LAYOUTS

Drawing Layouts—In your last lesson you found it a little difficult to lay out cover sizes directly on cover-paper sheets. You were a bit afraid that your sizes would not be right and if you cut your cover out of the large sheet it might be "out of square" or irregular.

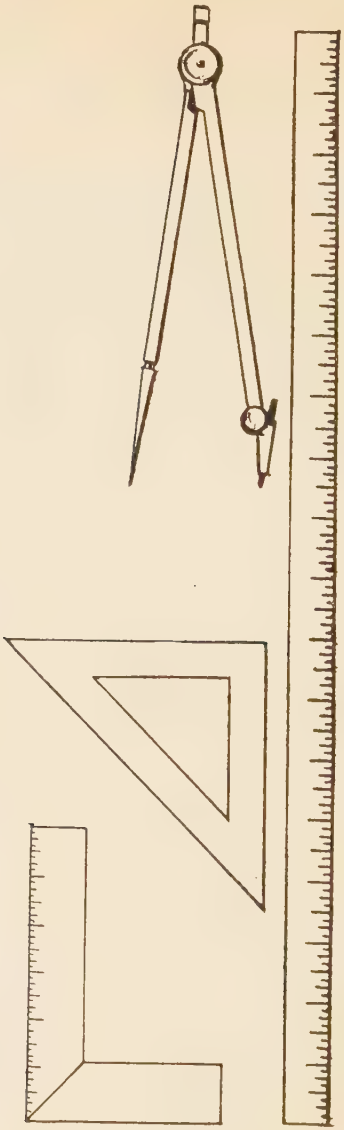
Every well-trained mechanic can sketch out on paper, roughly though it may be done, a plan of what he intends to build. You should be able to make your measurements, fix your sizes and the shape of materials to be cut, and plan every project on paper *first*.

To do this you need to know how to use a straight edge, a triangle or T-square and to measure accurately and draw rough diagrams. Observe the simple but understandable drawings in this book; they show you very clearly just how to measure and cut each piece of material or article to be made.

Tools Needed—A combination steel rule and straight edge 18″ long, a right angle triangle, an ordinary compass, together with a good, medium soft lead pencil, well sharpened, are all you need. (See Fig. 20, page 132.)

Using the Tools—Every project you undertake can be illustrated by straight and curved lines so long as you adhere to some "scale" of measurement. In other words if you want to draw a cover plan and the cover is to be 12″ wide by 9″ high when opened out flat and you desire to make your sketch half the natural size then all your lines must represent *half* the natural dimension.

You can always secure accurate right angles for drawing and measurement by the use of the triangle or T-square and straight edge rule. For drawing place the triangle in a relatively true position and then use your straight edge to extend lines. For example, you want to lay out a piece of cover



T-Square Right Angle Triangle Straight Edge Compass

Fig. 20—Drawing and Layout Tools

paper; you know the size but you want the piece when cut to be exactly true and square on all angles. Do it this way:

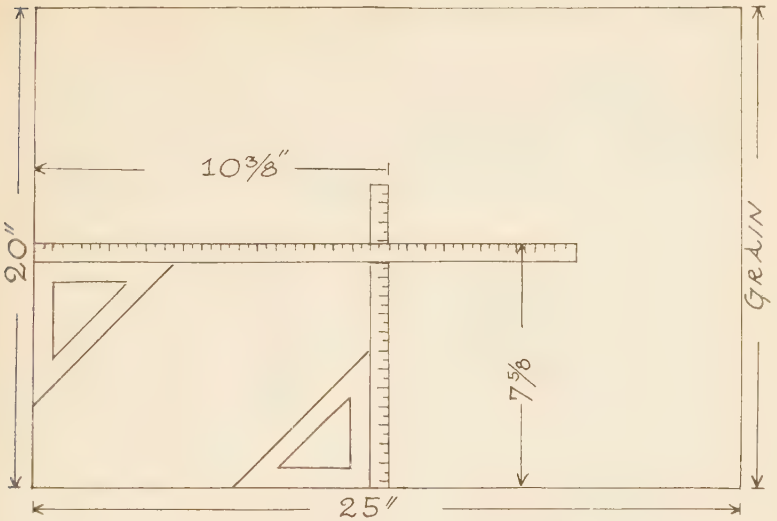


Fig. 21—Drawing Layout for Cover

Cover paper sheet 20″ x 25″.
Grain 20″ way.
Cover paper needed $10\frac{3}{8}$″ x $7\frac{5}{8}$″, Grain $7\frac{5}{8}$″.

You will first test one converging long and short edge with triangle and find them true; measure up from corner on short edge $7\frac{5}{8}$″, mark point with pencil dot; measure away from corner on long edge $10\frac{3}{8}$″, mark point with pencil; repeat measurements and marks $10\frac{3}{8}$″ to right from dot on short edge and up $7\frac{5}{8}$″ from dot on long edge. Place straight edge on two dots $10\frac{3}{8}$″ apart, position triangle under straight edge and true to paper edge. If triangle shows edge true draw your line to connect two dots. Repeat on the $7\frac{5}{8}$″ dimension.

If triangle or T-square, when in position, shows edge out of true, draw a *true* line along *long* edge, at a perfect *right angle to the short edge* and start your measurements from that *true line.* (See Fig. 21.)

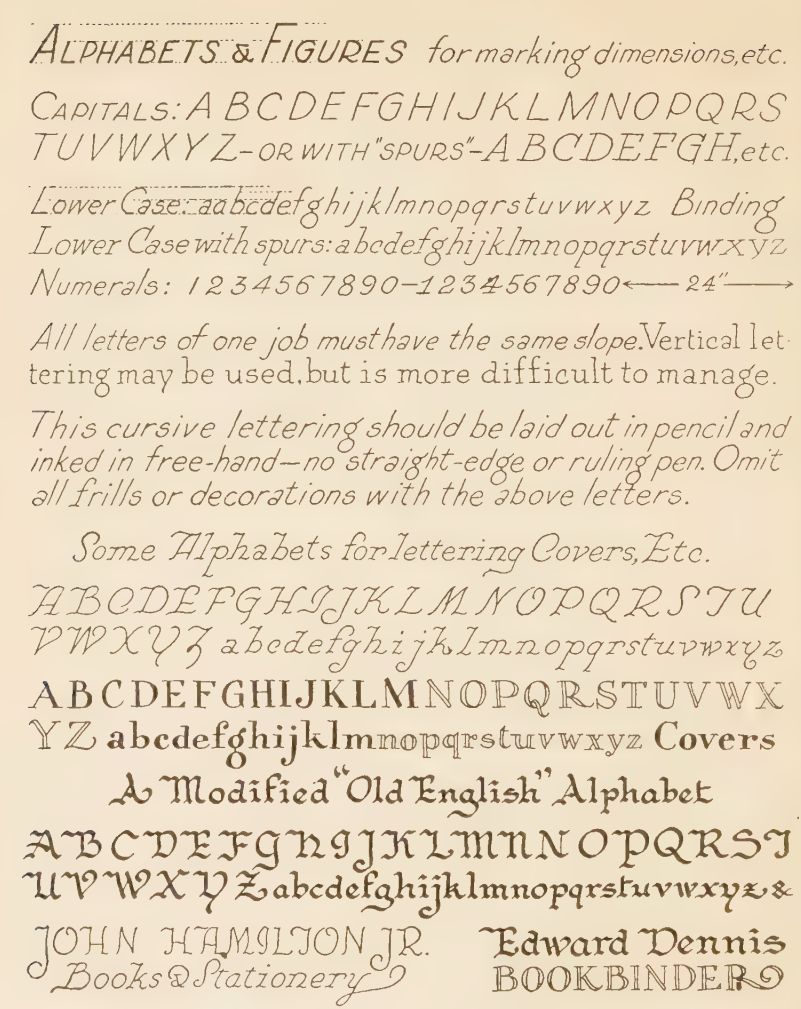

ALPHABETS & FIGURES for marking dimensions, etc.
CAPITALS: A B C D E F G H I J K L M N O P Q R S
T U V W X Y Z - OR WITH "SPURS" - A B C D E F G H, etc.
Lower Case: a b c d e f g h i j k l m n o p q r s t u v w x y z Binding
Lower Case with spurs: a b c d e f g h i j k l m n o p q r s t u v w x y z
Numerals: 1 2 3 4 5 6 7 8 9 0 - 1 2 3 4 5 6 7 8 9 0 ← 24" →
All letters of one job must have the same slope. Vertical lettering may be used, but is more difficult to manage.
This cursive lettering should be laid out in pencil and inked in free-hand — no straight-edge or ruling pen. Omit all frills or decorations with the above letters.
Some Alphabets for lettering Covers, Etc.
A B C D E F G H I J K L M N O P Q R S T U
V W X Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z
A B C D E F G H I J K L M N O P Q R S T U V W X
Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z Covers
A Modified "Old English" Alphabet
A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z &
JOHN HAMILTON JR.
Books & Stationery
Edward Dennis
BOOKBINDER

Fig. 22—Lettering Styles

Practice diligently to acquire skill in lettering, it will be found useful for many purposes.

Drawing Lines—School yourself to draw in the "conventional" manner used for mechanical drawing.

For indicating measurement lines use straight thin lines broken in center for dimension figures and with arrowheads at either end.

The little lines indicating the stops of measurement are carried out from object lines:

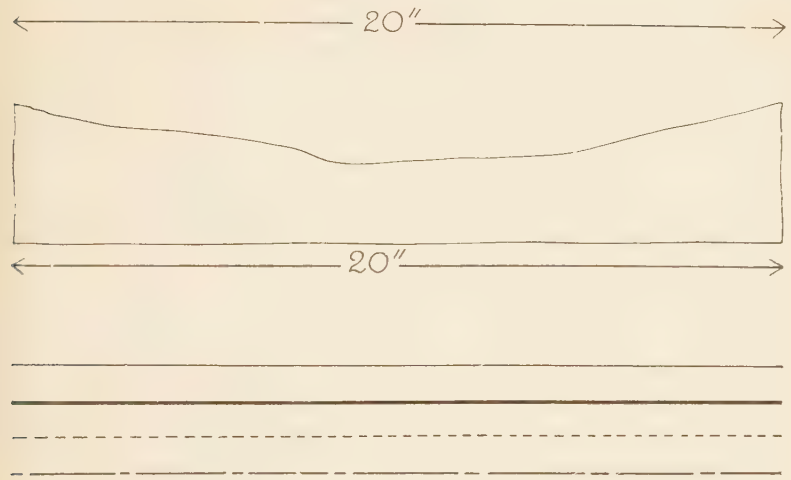


Fig. 23—Lines and Indicators

Use heavy or thin lines for finished object; thin lines for covering material or outer parts; dotted lines to indicate shaping or cutting lines, and dot-dash lines for folding, turning-in or bending dimensions.

Paper edges should be tested with Triangle or T-Square for trueness before drawing layouts or cutting materials.

Avoid the possibility of misshapen, crude appearing results by very diligently checking *all* dimensions and afterward following plan carefully. Accuracy is absolutely essential.

Your cover plan would look like this:

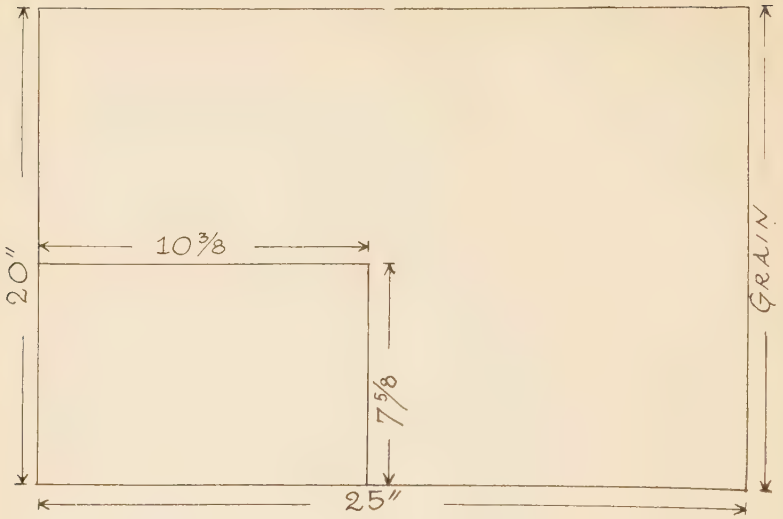


Fig. 24

Plan on paper first; draw neatly and legibly; be accurate in measurement dimensions.

PROJECT 5

Cutting and Fitting Booklet Covers

Materials Needed: Several sheets of good light colored (manila) wrapping stock or white machine finish paper

Tools:
Triangle or T-square.
Straight edge.
Pencil.
Shears.
Knife.
Bone folder.

Prepare drawings for the several cover sizes needed in Lesson VI, Project 4. Draw these exact size on ordinary (new) wrapping or smooth book paper. After carefully checking all measurements cut these out accurately with long bladed shears or by using your straight edge and your bookbinders knife.

To the Teacher—It is well to require cutting by shears and straight edge and knife both, for experience in handling either.

Cutting with Shears—To cut accurately and in a true line with shears it is necessary to start the shears cut *exactly* on the line and as you cut keep the cut edge of the material true to the blade of the shears, thus:

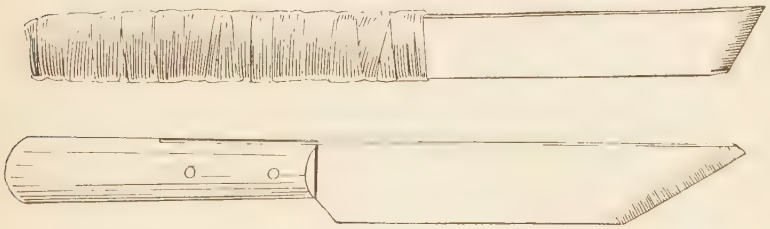


Fig. 25—Binders Knives

As the cutting progresses, lift the left half of sheet gradually with left hand, keeping the edge of cut snugly against *upper* blade of shear and parallel to it.

Cutting with Straight Edge and Knife—With a straight edge and knife it is necessary to have a hard cardboard, smooth wood surface (not harmed by knife marks) or best of all a sheet of smooth flat zinc tacked down to a flat surface like a table top. The knife should be *very sharp* especially at the *nose.*

Place straight edge *exactly* on line, hold firmly with left hand, let knife nose *follow* straight edge *snugly* and make a continuous cut entire length of line to be cut; do not go *backward.* If necessary to repeat over previous cut do so by start-

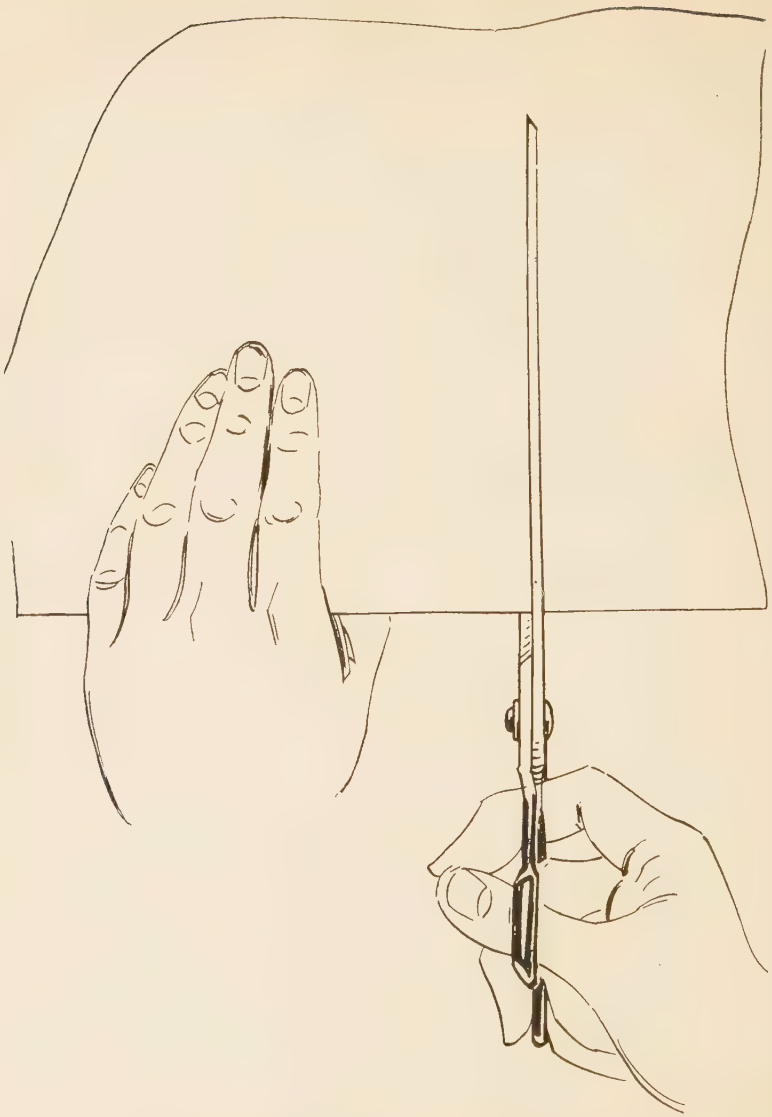


Fig. 26—Proper Method of Scissors Cutting

Keep the scissors blade on a direct line with your right eye; follow line carefully. If cut is started true and left hand keeps cut edge snugly against blade, a true cut is bound to result.

ing at beginning again. A special knife of thin tool steel with leather covered holding end is *best* for this work.

Now fold each of your patterns in accord with your drawings; test their accuracy by fitting them over the booklets for which they are intended.

Fig. 27—Straight Edge and Knife Cutting

Note different positions of two types of knives. The pointed nose knife is held so the *nose* cuts, the less oblique blade is used with *entire* cutting edge of knife in contact with paper or material to be cut.

To the Teacher—A careful inspection of drawings, cut out patterns and fit ups to booklets at this point will often save spoilage in the next Lesson and Project.

TEST QUESTIONS

1. Of what use are working drawings?
2. How would you secure true right angles?
3. What is a straight edge?
4. Are patterns necessary?
5. Explain shear cutting.

LESSON VIII

COVERING BOOKLETS—LACING

To the Teacher—If a cutting machine is part of the school equipment the first step in this lesson should be the trimming of the booklets prepared in Lesson III, Project 2, and selected in Lesson VI for overhanging and overlapping covers. Trim three sides to the dimensions and in accord with the style selections in Lesson VI. *Do not* let students use cutter alone. Instruct them while trimming, if desired, in the gauging, clamping and knife action against cutting stick, while *you* do the cutting.

In case no cutter is available the thinner and hard finished papers may be cut on a board or table shears by the students (but under supervision); or by placing in a table screw press or finishers press and cutting against a straight edge with a *very sharp* wide bladed angle edge knife. A plough and press is advisable if no cutting machine can be had.

PROJECT 6

Covering Booklets

Materials: Cover papers and booklets prepared in Lesson VI, Project 4. Patterns prepared in Lesson VII, Project 5.

Tools:

Shears.	Coarse needles.
Knife.	Heavy thread or light cord or silk floss.
Straight edge.	
Triangle.	Awl.
Pencil.	

Covering Booklets—You have prepared a number (7) of booklets for covers. Your teacher has shown you how to trim the edges of those that are to have overhanging or tuck-in flap covers and you have made your selection of cover paper for each, likewise prepared drawings and patterns by which to cut out your covers.

Using the cover papers selected and patterns, carefully cut out with shears or knife and straight edge, a cover for each booklet. Before cutting the covers first transfer your pattern sizes by pencil markings to the cover papers and compare with the faint markings you made in Lesson VI, before you were taught how to make a working drawing and from the drawing a pattern.

Do your patterns correspond to your original pencil markings? Probably not. In any case follow your new patterns and let us see how accurate we are now.

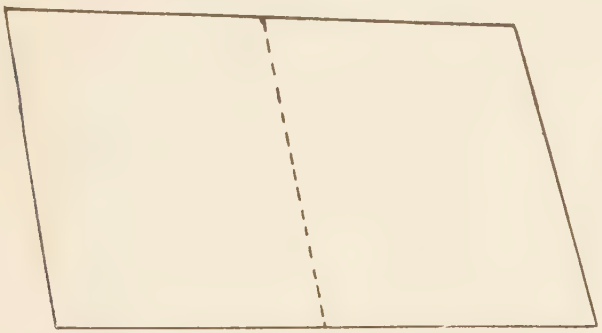


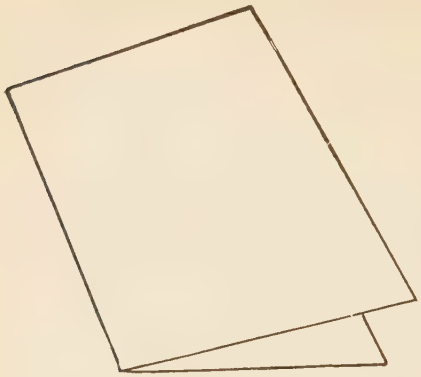
Fig. 28—Cover Diagram Before Folding

After cutting out the several covers lay each cover with its booklet ready to fit-up cover to booklet.

Folding and Fitting the Cover—For all booklets except D, the cover pieces are to be folded exactly in the center of the long way. Before folding carefully select the "right" side of the paper to appear outside.

The right side of cover paper is that side which shows the most finish or grain. The plainer side is the "felt" side of sheet. The right side should always appear OUTSIDE when on a booklet.

All four edges and corners should be true, square and equal.



Cover for D— Lay out this cover "wrong" side up and with your triangle and straight edge lay off in pencil, following your pattern, the three folds you are to make in this special cover. It will look like Fig. 30.

Fig. 29—Folded (Exactly in Half)

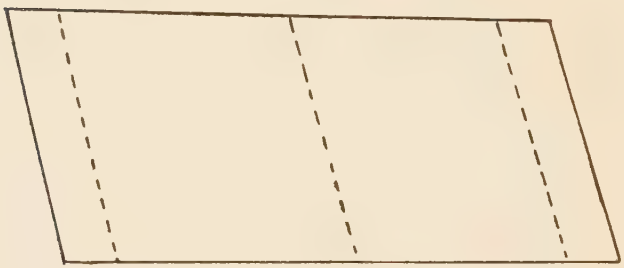


Fig. 30

Now fold each flap first, like Fig. 31:

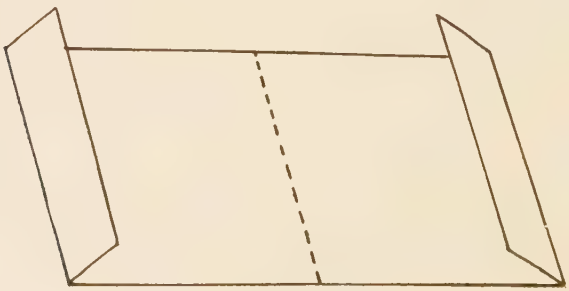


Fig. 31

Then fold exactly in center, like Fig. 32:

Now you are ready to place the booklets in their respective covers. Take all of the booklets that are to have flush cut

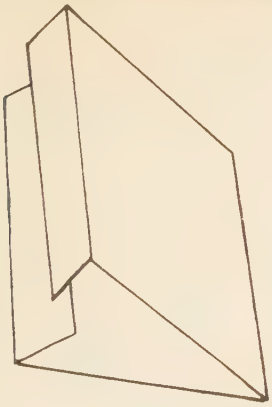


FIG. 32

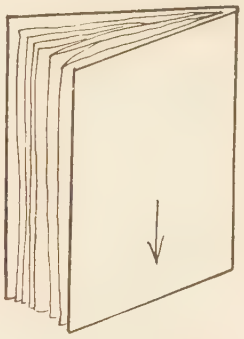


FIG. 34—JOGGING

covers first (Nos. A, B, and C); open your cover and insert signature neatly into cover, as in Fig. 33:

Jog each up carefully to the "head" or top of booklet, following Fig. 34:

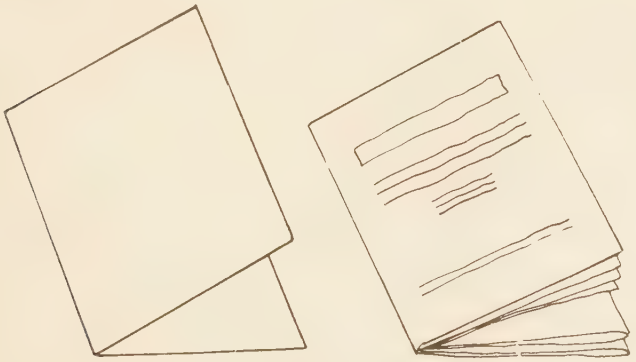


FIG. 33—BOOKLET AND COVER

Lay aside until ready to fasten into cover.

Next take all the "overhang" style covers (E, F, and G) which have been folded, open out, lay flat, or nearly so, and

place their respective booklets in the covers (*these booklets have been trimmed*) placing each booklet so $\frac{1}{8}$" margin of cover (called "squares") projects beyond edge of booklet. (See Fig. 35.)

One signature booklets are inserted in covers exactly like inserting sections into each other. Overhanging covers require "positioning" the section at head, side and foot.

Fig. 35—Overhang Cover

Now you have left D—with the "flaps" on cover. Place the booklet in the cover as you did with E, F, and G; the flaps will be adjusted after fastening in the cover.

PROJECT 7

Lacing—Stitching -Tying

Materials: All Booklets and Covers prepared in Project 6.
Silk floss or cord.
Tools: All usual Tools.
Awl.
Coarse needle, medium point.

Stitching or Tying into Covers—The simplest form of hand binding, especially on thin, one signature booklets is by means of thread, silk floss, or thin cord passing through cover and booklet, securely knotted either inside or out.

For this purpose we require a needle, some strong colored thread, or silk and an awl.

First, lay one of the flush covered booklets on the table in front of you and with rule and pencil measure off along the back harmonious distances from head and foot of booklet between which the thread or cord must appear.

Mark lightly with soft pencil; dividing space along edge as shown in Fig. 36; now make sure the booklet is jogged evenly at the "head" and fits snugly into the cover at the back; holding it slightly with right hand, open the booklet at the

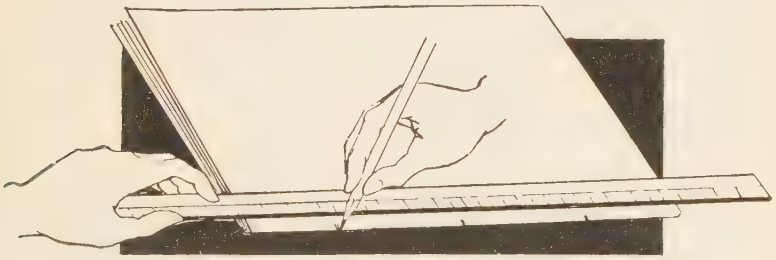


Fig. 36—Marking for Cord Holes

center and bear down with left hand *inside*, index finger of left hand feeling the back edge *inside*.

Taking your awl in right hand pierce at marked points with clean, sharp, small holes. (See Fig. 37.)

Pick up needle threaded with floss, cord or cotton thread and, starting *inside* at center hole bring needle *out*, then *in* at hole nearest top, along *inside* until hole nearest foot is reached then *out*, up to middle hole and *in* again. (See Fig. 38.)

At the *start* about 4 inches of thread should be left *inside*, likewise when the needle is carried *in* the same amount of thread left and remainder cut off.

. Tie the two loose ends either in a square or bow knot, in each case bringing the two ends from the center hole *up* on *either* side of the thread extending from top to bottom holes.

Follow this same procedure on Booklets A, B, and C tying inside.

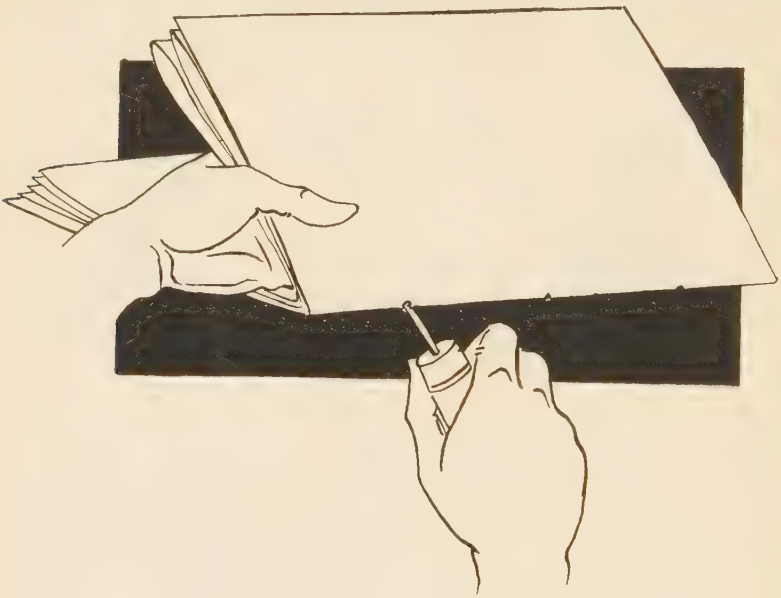


Fig. 37—Piercing Holes with Awl

On Booklet D reverse the process and tie in a bowknot *securely tied* on outside. Start *in* at center hole, *out* at top hole, along back outside *in*, at bottom hole and *out* again at *center* hole, tie. (Fig. 40.)

For Booklets E, F, and G make four holes spaced nearer the top and closer together. (Fig. 41.)

Start by leaving a longer thread outside, go *in* at top, *out*, around thread and back *in* at hole 2, repeat at hole 3, *out* at

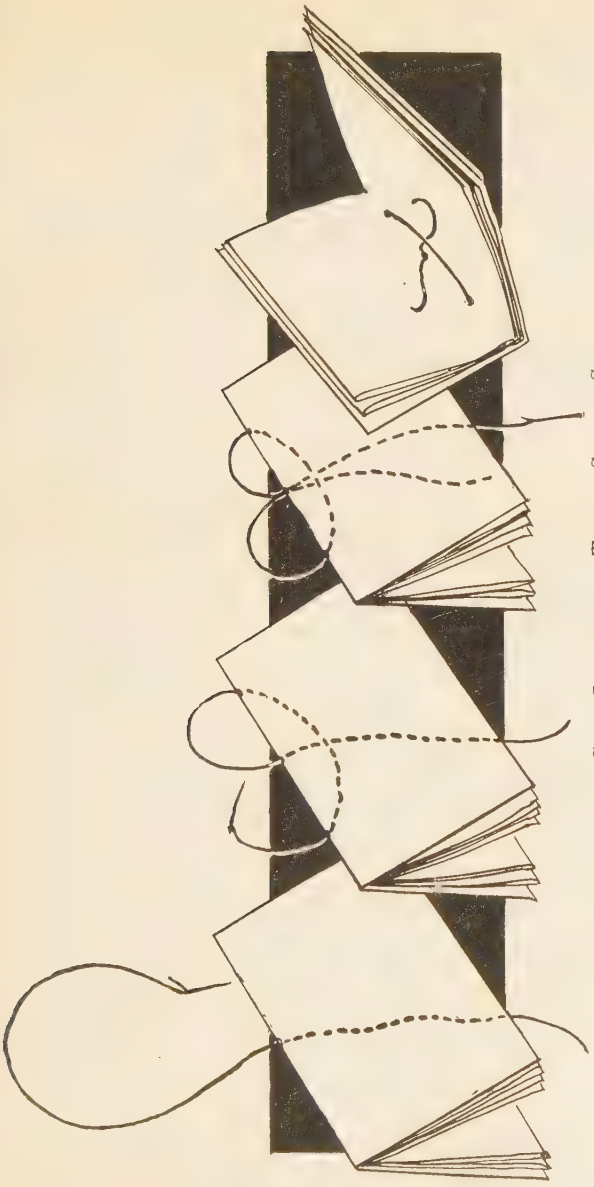


Fig. 38—Cord Lacing and Tying—Saddle Style

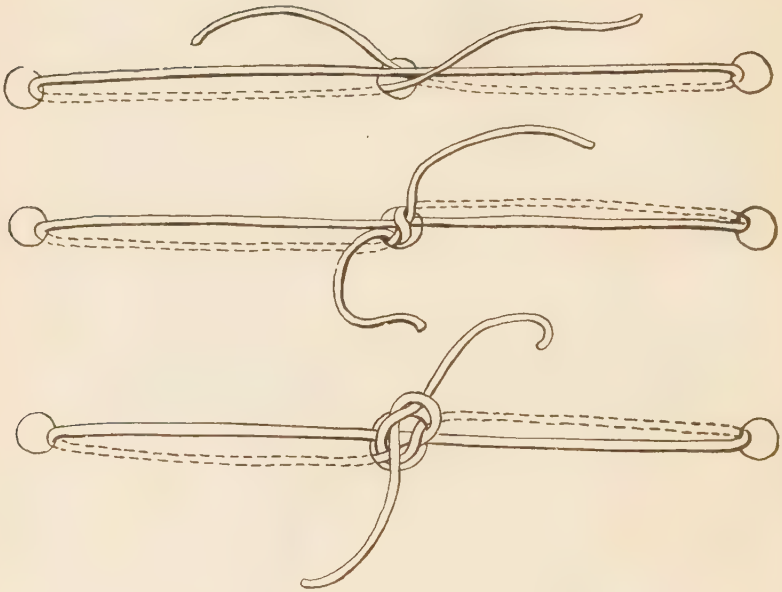


Fig. 39—Method of Tying Knots

Note that two ends of cord, floss or thread are brought up on either side of main stitch and knot made over long cord.

bottom hole 4, *up* to hole 3 on outside, run needle under thread loop, *tie* in small hard knot with two even long ends left dangling or in bowknot. (See Fig. 42.)

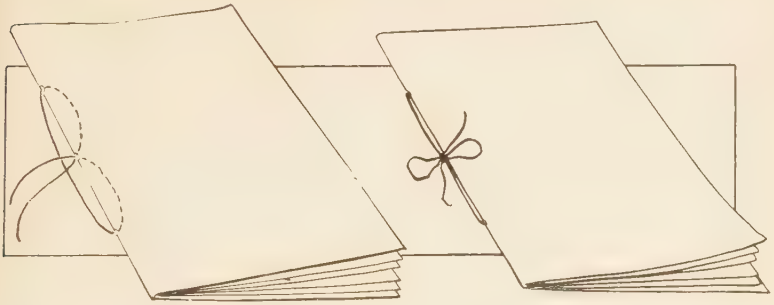


Fig. 40—Lacing and Tying Booklet

Finish by trimming the cut flush books to sizes desired by either method previously explained.

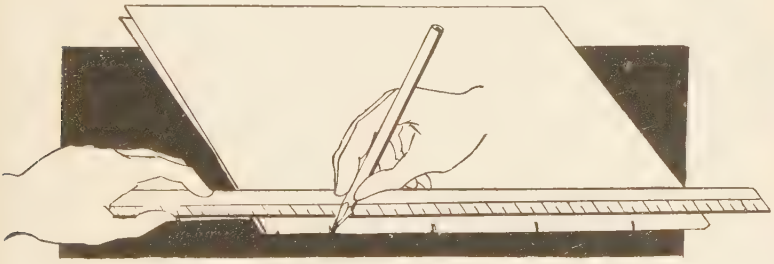


Fig. 41—Marking for Cord Holes

Booklet D, with flaps, should be completed by lifting flaps and placing first and last leaves of booklet respectively under front and back flaps of cover.

Inside of flaps may be pasted slightly to end leaves of booklet or end leaves may be tipped down to inside pages of cover.

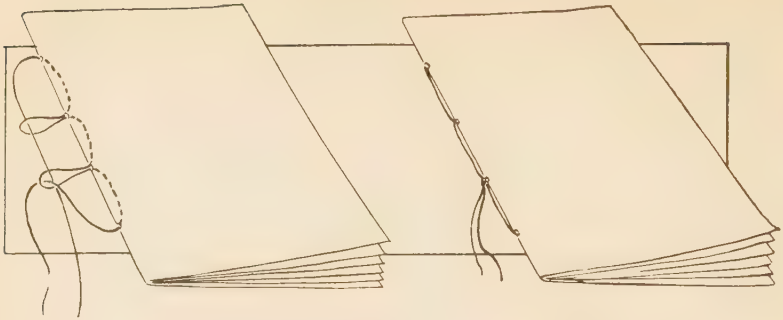


Fig. 42—Three Loop Lacing and Tie

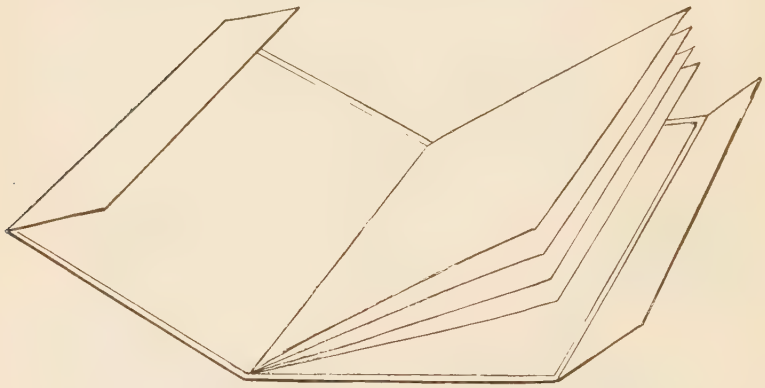


Fig. 43—Overhung Cover with Flaps, End Papers Tipped Under Flaps to Cover

TEST QUESTIONS

1. What is thread stitching?
2. Explain one method.
3. How are booklets positioned in covers?
4. Do you trim before or after covering?
5. What is a "flapped" cover?

LESSON IX

COVER DECORATING—LABELING

Cover Decoration—Your booklets are now finished, except for lettering or labeling the covers in order to show the purpose for which they were made. Later on you will be taught the various methods of "lettering," "tooling," "stamping" or "inking" covers, particularly cloth covers and those of better materials. We will follow a simple method in treating these we have just finished.

PROJECT 8

Decorating Booklet Covers—Use of Paste

Materials Needed: One or two old issues of "The Saturday Evening Post" or any magazine with plenty of advertisements.
Clean, flat newspapers.
Paste.
Booklets completed in Project 7, Lesson VIII.

Tools Needed: Triangle.
Straight edge.
Scissors.
Pencil.
Paste brush and pot.
Zinc paste board.

Labeling—The simplest form of cover decoration is the use of printed paper labels. These are usually designed by an artist and a plate made from the artist's drawing from which to print the labels, or plain type matter is "set-up" with some border decoration and the printing completed from that layout.

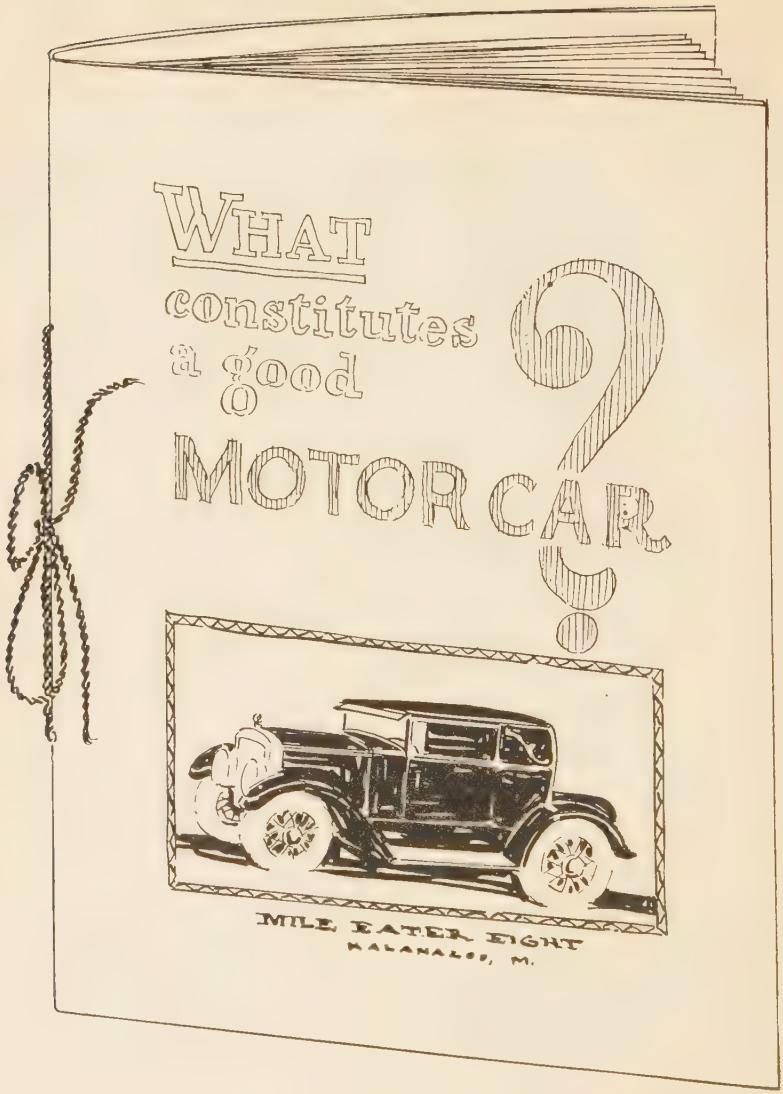


Fig. 44—Decorative Cover

Obtained by drawing lettering and panel border and mounting a selected label.

Take a copy of "The Saturday Evening Post" and look through the advertisements. You will find many advertisements in which pictures (illustrations) appear, to show or describe the article advertised.

Decide that the six booklets you have made are to be advertising booklets of various purposes. Make out a list somewhat like this:

Booklet A—16 pages—cut flush cover—antique paper—Bonds.
Booklet B—16 pages—cut flush cover—antique paper—Education.
Booklet C—16 pages —cut flush cover—super paper—Clothing.
Booklet D—32 pages—tuck-in flap—machine finish paper—Travel.
Booklet E—16 pages—overhang cover—coated 60 pound paper—Automobiles.
Booklet F— 8 pages—overhang cover—coated 80 pound paper—Furniture.
Booklet G—64 pages—overhang cover—thintext paper—College.

Select your titles and pictures with care. If you choose, you may draw and letter your own ideas on the booklet covers. The suggested list above does not limit you in your selection.

When you have finished, your booklets *should* look something like Figs. 44 and 45.

Cover design calls for artistry and a sense of proportion.

Should you decide to decorate the cover yourself try plain lettering and line treatment like Fig. 46.

Use your triangle, straight edge, dividers and *pencil*—endeavor to make an artistic cover.

Affix your labels (it is well to try some with labels) with paste. Care must be taken to get just the right amount of paste, no lumps and *not too much.*

Before pasting off your label, mark the position of the label on cover. Pasting is best accomplished by laying the sheet to be pasted face downward on a piece of newspaper laid flat on a table top and applying paste evenly with a narrow (or round) brush, starting in at the center and working outward toward the four edges, as in Fig. 47, page 158.

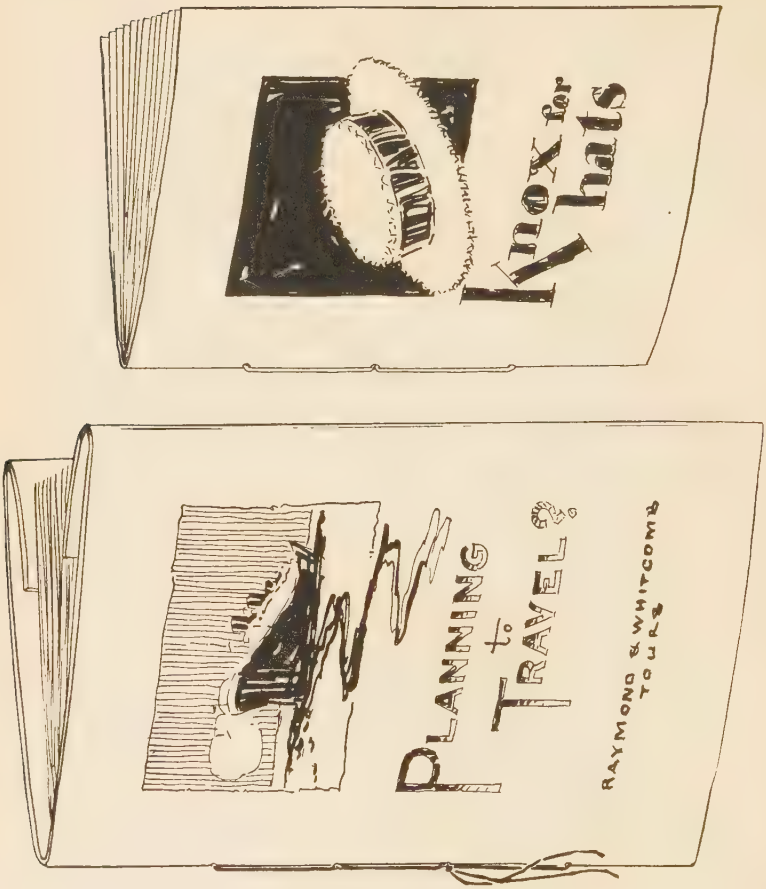


Fig. 45—Decorative Covers
Also obtained by drawing letters and mounting labels.

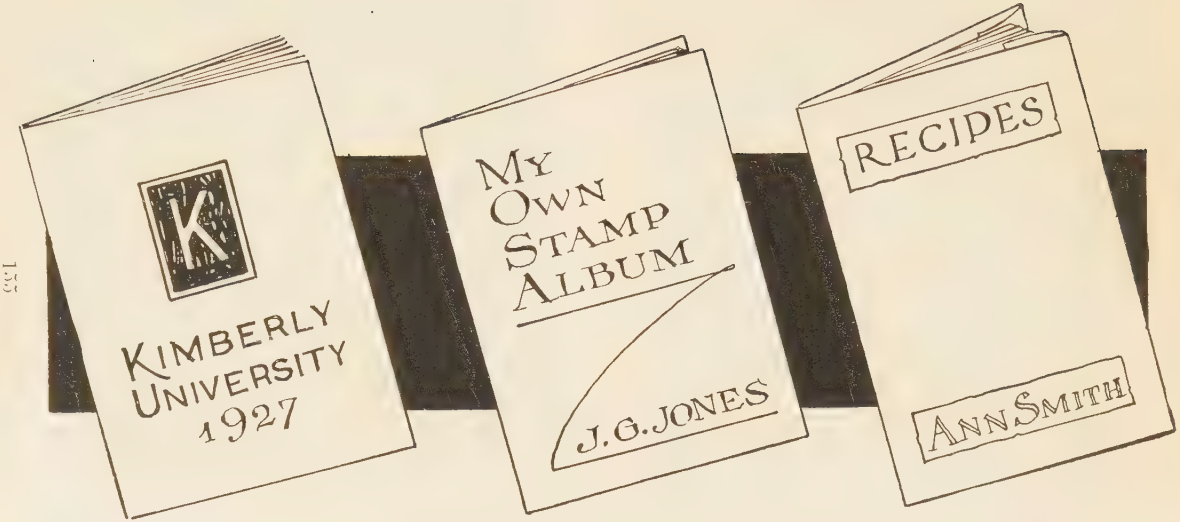


Fig. 46—Simple Decorations for Covers

Resulting from drawn titles only.

First, Paste-off Surface Evenly

Next, Lay Labels or Material on Board

METHOD OF USING ZINC PASTING BOARD

Third, Lay Over Labels a Sheet of Newspaper and Rub Gently

Finally, Pick up Labels Using Awl or Knife Point to Get Under Label

METHOD OF USING ZINC PASTING BOARD

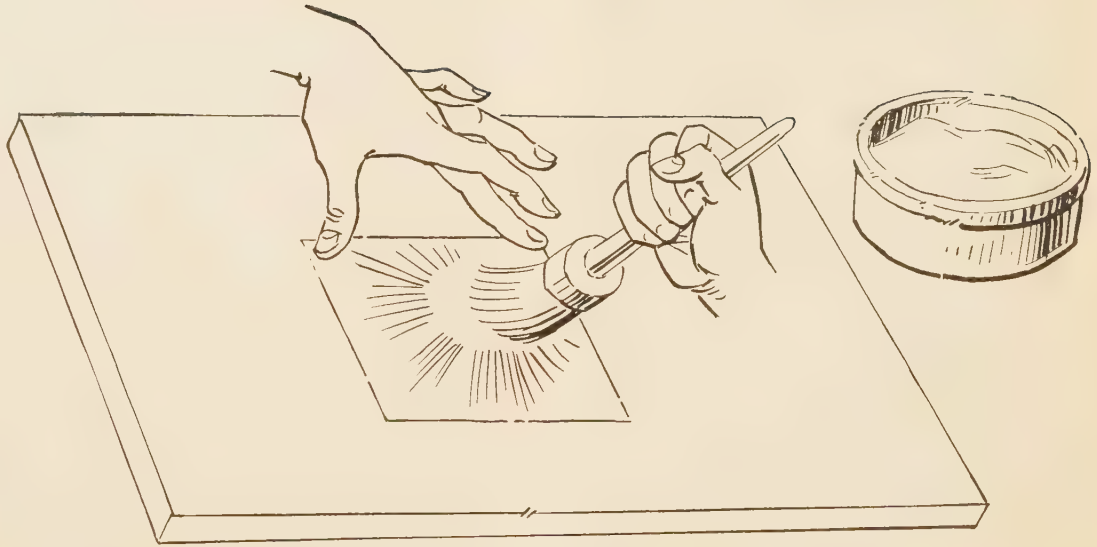


Fig. 47—Method of Using Paste Brush

Keep material flat; start brush in center and work toward four edges; spread paste thin and evenly over entire surface.

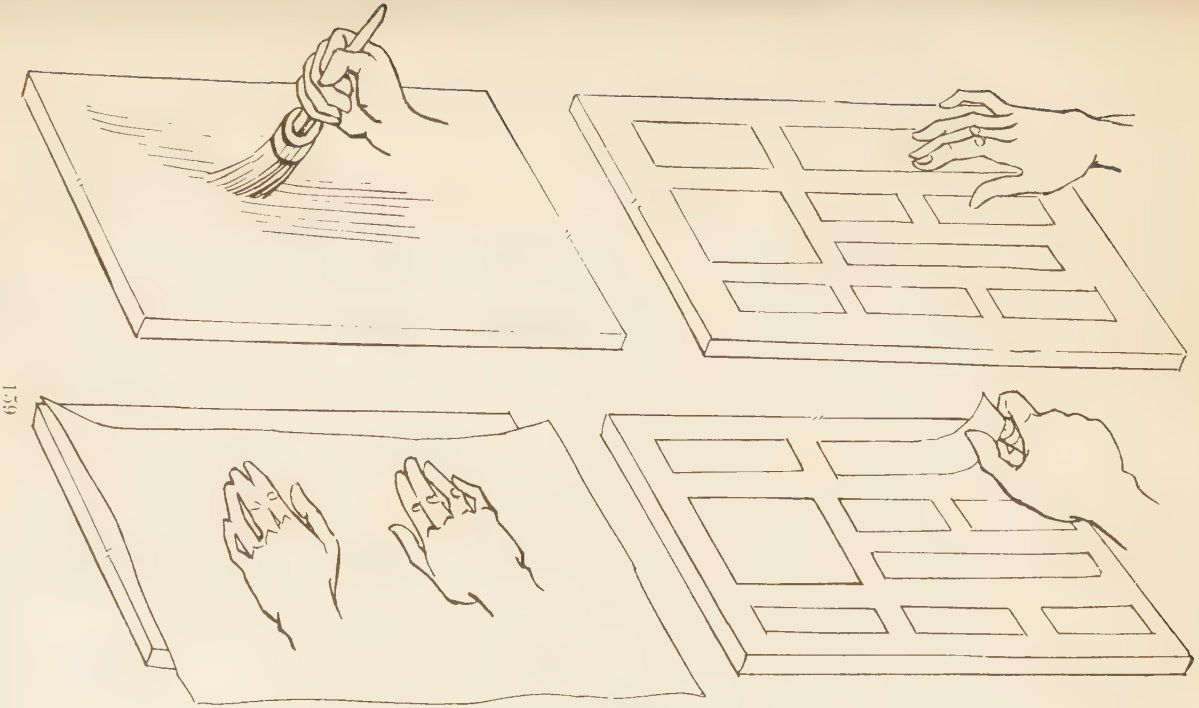


FIG. 48—USING PASTING BOARD
Diagram giving details of operations shown in photographs in pages 156 and 157.

Paste causes paper to stretch with the grain and to wrinkle while drying unless kept flat under pressure.

Keep fingers out of paste until it is necessary to touch pasted section lightly to hold label while entire surface is completed. Use tips of thumb and forefinger *only* to hold label flat.

The use of a zinc pasting-off board is more convenient and far neater than pasting the label direct. Coat the zinc surface of the board (or sufficient space to accommodate labels) with a thin, even quantity of paste. Lay your labels on the board in the paste, back down. Spread a clean piece of newspaper over board and rub gently over entire surface. Pick up and discard newspaper. Pick up pasted-off label by means of the tip end of your awl or knife, grasp it, face upwards with thumb and forefinger of both hands, and place carefully in position already marked on booklet cover; *wipe your fingers*, then smooth label gently and lay over it a piece of clean newspaper rubbing firmly through the newspaper. It is best to place a piece of clean newspaper over booklet and put a weight on top of the paper for 30 minutes to allow paste to set and label to adhere thoroughly and smoothly.

Cleanliness in pasting is necessary. Too much paste causes cover to wrinkle, too little may prevent label from sticking firmly.

TEST QUESTIONS

1. How may covers be decorated?
   Are pictures worth consideration on booklet covers?
3. What care must be used in pasting?
4. Explain pressing.
5. What margins are pleasing on a cover?

LESSON X

BOOK SIGNATURES—SCRAPBOOK BUILDING

Books of Several Signatures—We have studied booklets which contained no more than 64 pages and all bound in one signature "saddle-wise." Real bookbinding requires a knowledge of how to handle several "signatures" in each book.

A book may consist of any number of pages and be made up of any number of signatures each containing the same or a different number of pages.

The folding of a many signature book is the same as if only one signature is to be used. Later on we shall learn about wonderful machines that fold the signatures and other machines that assemble those signatures into complete books. For the present we must do our own folding by hand methods and assemble our books by the process of hand gathering.

Hand gathering is the process of assembling in proper order the several signatures of a book.

PROJECT 9

Photograph Album or Scrapbook

Materials Needed: 6 Sheets 20″ x 25″ or 23″ x 33″ cover paper, preferably dark brown, dark green or black; weight should not be lighter than 20″ x 25″—60.
1 Yard No. 00 silk cord or mercerized shoe string with covered tips, brown or black, one yard long.
White ink (ordinary writing ink).

Tools Needed: Bone folder.
Pencil.
Triangle.
Straight edge.
Knife.
Hammer.
$\frac{3}{16}$" Punch.

We are to make a scrapbook (or it may be used as a snapshot album, book to hold cooking recipes, or a postage stamp collection).

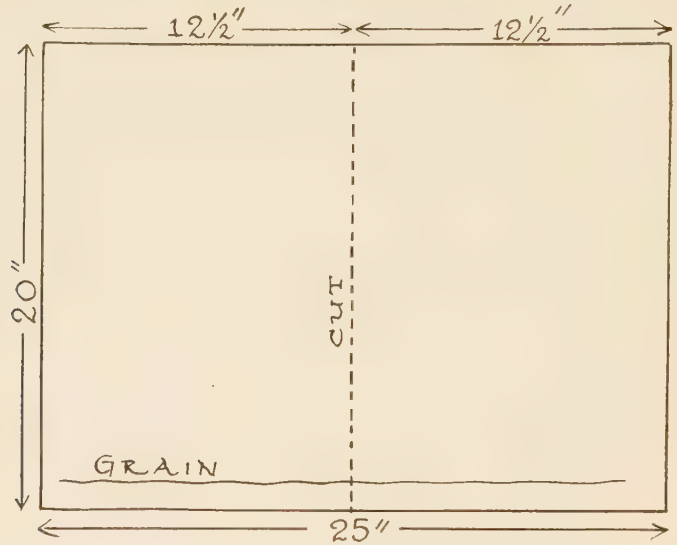


Fig. 49

The proper size of paper for our book, which is to be 9" x 12", would naturally be 20" x 25" with the grain the 25" way. Test your paper, every sheet, to make sure grain is correct. If the grain is the short way change your book size to 12" x 9", *oblong* instead of *upright.*

An "upright" book is one where the top edge measures less than the front edge; and oblong book binds on the shorter edge, so is longer along the top edge.

The grain of our paper is the 25″ way so we will lay aside one sheet to be used for the cover and carefully mark each of the remaining five sheets, using our steel rule, and cut apart to get two pieces each 12½″ x 20″. (Fig. 49.)

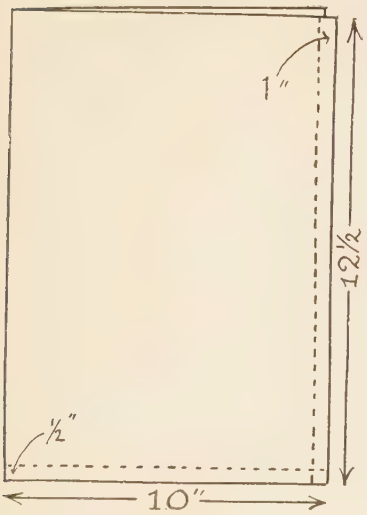


FIG. 50

Next fold the 10 pieces exactly in half, across the *short way* giving 10 four page sections. Now, taking each section one at a time, mark off a strip 1″ wide along the 12½″ front edge and ½″ wide along the bottom edge. (Fig. 50.)

Take your knife and straight edge, lay each piece of folded cover paper flat on the zinc cutting table and placing your straight edge on your marks trim off the strips. (Figs. 51 and 52.)

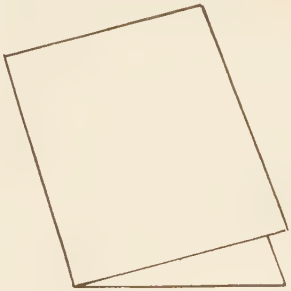


FIG. 51

Be careful to place your straight edge true, hold it firmly with your left hand and draw your knife steadily toward you snug against straight edge. Go back and repeat knife stroke *in the same channel* until the strips are neatly separated.

Lay the 1″ x 12″ strips carefully aside as you will need them. The small strips may be discarded.

Now you have 10 folded 4 page sections 9″ x 12″ in size and 20 strips 1″ x 12″.

Take one of the 1″ x 12″ strips, first testing the length, measure off and dot 3 places. (Fig. 53.)

Next take your $\frac{3}{16}$″ punch and hammer and carefully punch holes exactly over your dots, first laying sheet to be punched on a piece of wood or pulp board. This is your punch pattern.

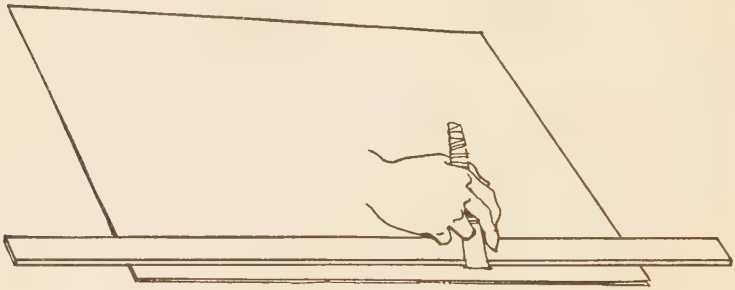


Fig. 52 —Using Straight Edge and Knife

To the Teacher—If a hand punching machine is available, instruct in the method of setting up, gauging the punch holes apart and setting the gauges so each sheet will be punched exactly alike.

Taking two of your folding sections at a time, carefully jog the back and top edges, place your pattern on the sheets and using your punch and hammer punch all sheets and strips. Punch all of your 1″ x 12″ strips *also*. (Fig. 54.)

Punching by hand requires a pattern for accuracy if more than one piece of material is to be punched.

FIG. 53

Now gather your 10 sheets together, putting a strip between each leaf. (Fig. 55.)

Be sure to "insert" a strip inside each folded section.

Placing narrow strips in and between sections to allow space for additional material on covers is termed STUBBING.

Jog all sections and strips carefully to the back edge so that the *back* will be even and each strip in place. If you have worked carefully each punch hole will be exactly above the other.

Now you are ready for the cover. You laid aside one sheet for this purpose. Your book measures 9″ wide by 12″ high and we intend this cover to overlap $\frac{1}{8}$″ all around.

We must know the thickness of the book in order to fit the cover properly.

Place a brick weight on top of your jogged book close to the back edge. Using your ruler measure the thickness of the back. (Fig. 56.)

Thickness (get it exactly while pressing down on the brick) is termed *bulk*.

We will guess it to be $\frac{3}{8}$″ thick. Your book is 9″ wide so we need 9″ plus 9″ plus $\frac{3}{8}$″ (for bulk) plus $\frac{1}{4}$″ (for two overhang edges of $\frac{1}{8}$″ each), or total of $18\frac{5}{8}$″. The book is 12″ high plus $\frac{1}{4}$″ (two squares $\frac{1}{8}$″ each) a total of $12\frac{1}{4}$″. So we cut our cover piece out of the 20″ x 25″ sheet saved, $18\frac{5}{8}$″ long by $12\frac{1}{4}$″ wide, grain the $12\frac{1}{4}$″ way. *This is important.* Be sure it is cut true.

Now lay your cover piece flat on the table *right side down;* and mark it off like this: (Fig. 57).

Covers must be fitted snugly and with uniform, square back.

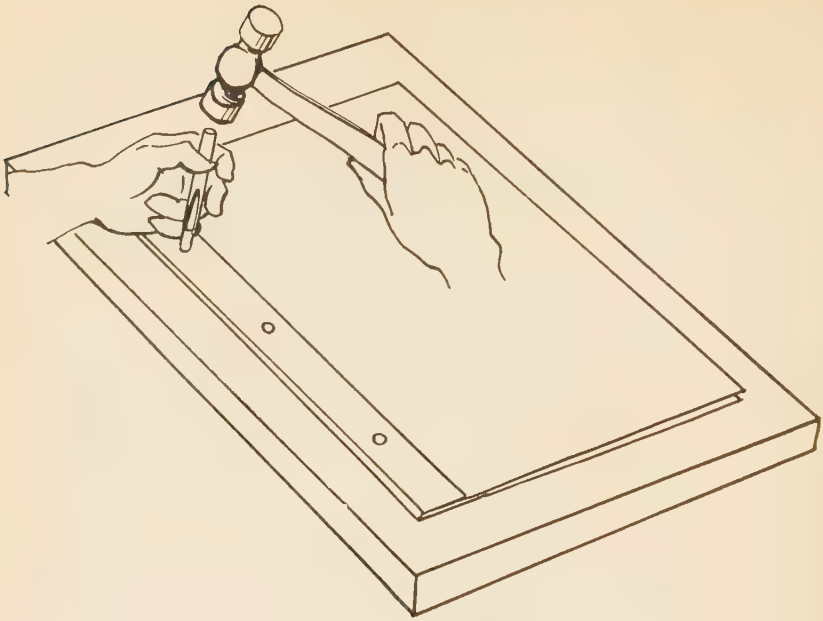


Fig. 54—Punching

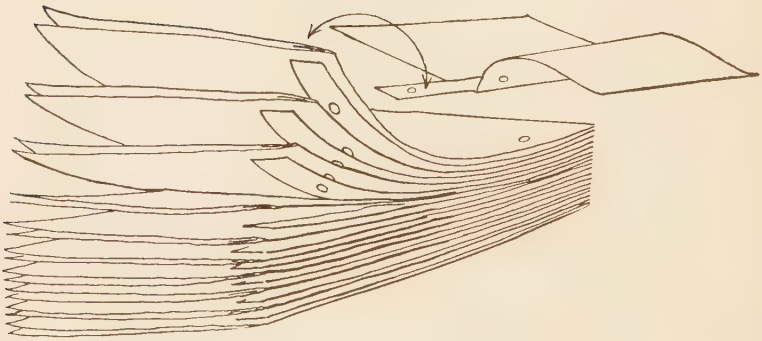


Fig. 55—Gathering and Inserting Stubs

Lay your straight edge on the back two lines and with the *back* of your knife blade *crease* along the line. Next fold the cover *over* on each line, first one then the other, being

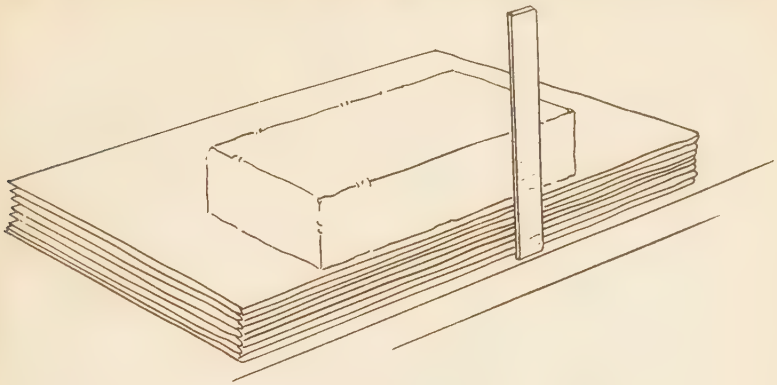


FIG. 56—MEASURING BULK FOR COVER

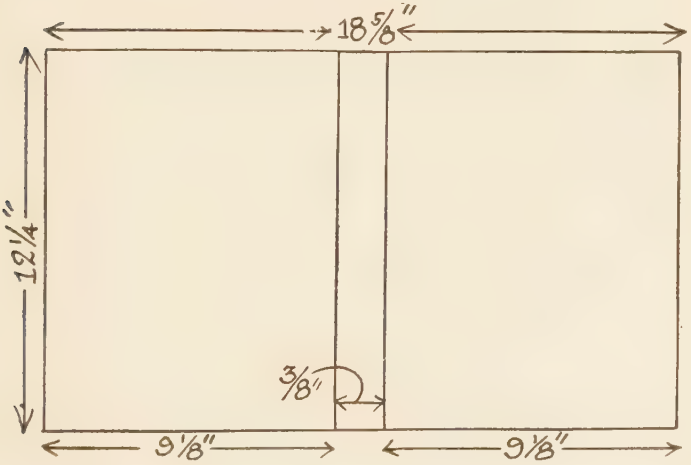


FIG. 57—COVER LAYOUT; CREASE ALONG TWO BACK LINES

careful to keep the outer edges of cover squared to each other as you do so. After this your cover will look like Fig. 58.

Lay cover out flat again *right side up;* take your punching pattern and place it in position along the back folding edges

both front and back, and *down* $\frac{1}{8}$″ *from the top edge* (to allow for overhang) and punch the 6 holes needed to make it correspond to book. (Fig. 59.)

Now jog your book once more to back and top; turn your cover once more *right side down,* and place your book on cover. (Fig. 62.)

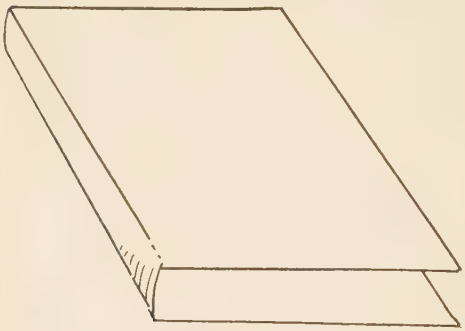


Fig. 58—Folded Cover

Holding the book firmly with left hand, bring cover up against back of book and over to front of book, then releasing pressure on book. Press cover down snugly and your book is ready for lacing. Lay a weight on cover until finished. Keep weight on while lacing—by so doing you can lay book flat, hanging over edge of table sufficient to work laces through easily.

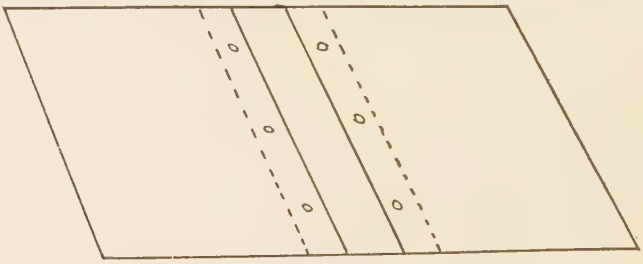


Fig. 59—Layout for Punching Cover

Lacing—Take a shoe string of suitable shade, flat style, covered tips and after studying Fig. 60, proceed:

1. Pass lacing through top hole and have longer length cord on bottom.
2. Pass the end of lace around back of book and back through same hole down; draw tight; even up lace so both ends are same length.

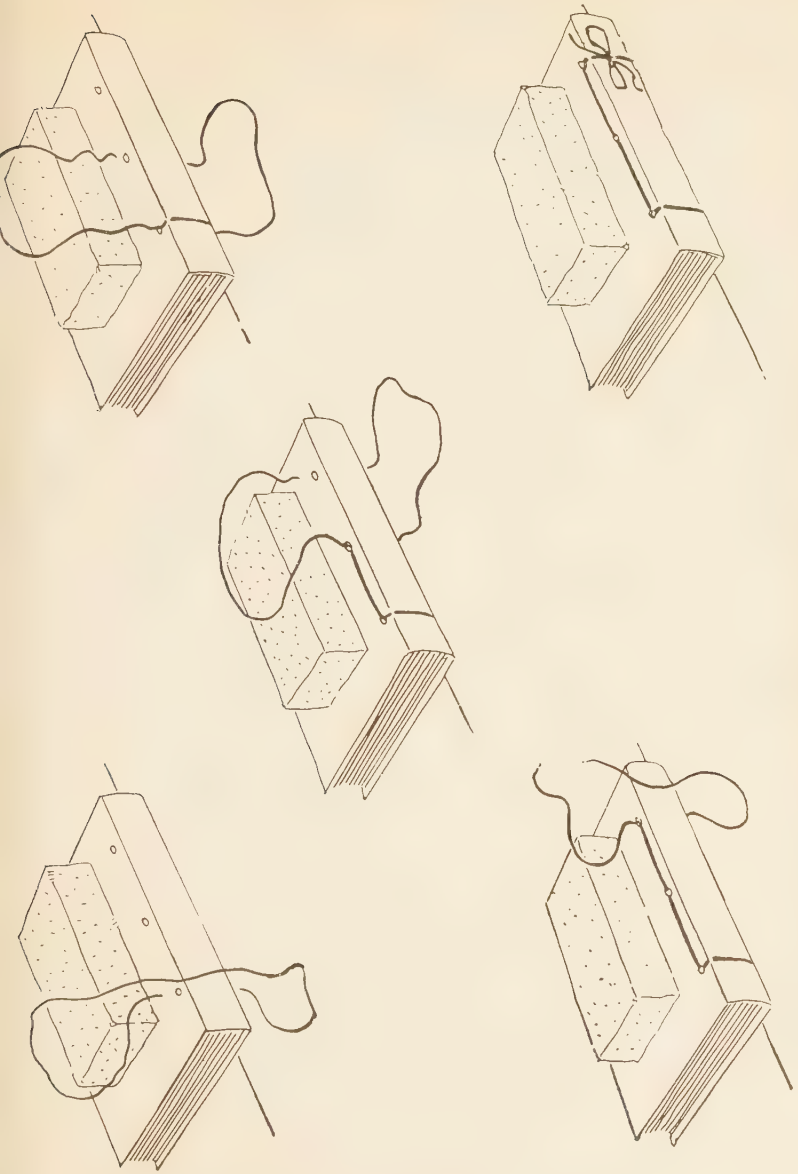


Fig. 60—Method of Lacing and Tying

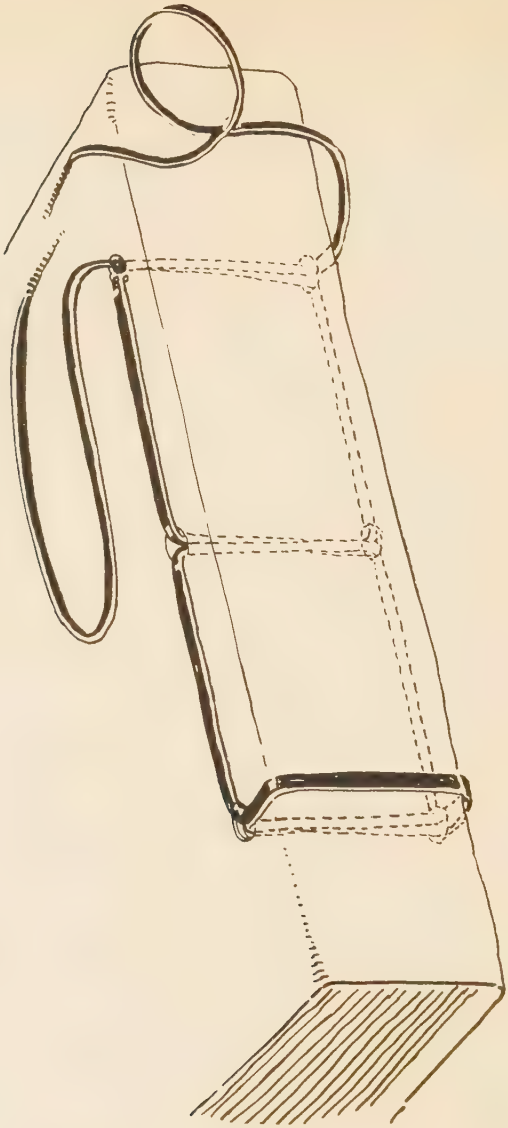


Fig. 61—Enlarged Plan of Lacing

3. Carry top lace to center hole and *down* through.
4. Carry bottom lace to center hole and *up* through.
5. Carry top lace to bottom hole and *down* through.
6. Carry bottom lace to bottom hole and *up* through.

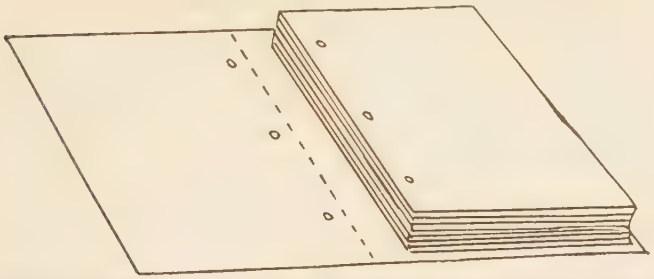


FIG. 62—BOOK LAID ON COVER READY TO FOLD COVER OVER

7. Bring both laces around back and tie bowknot on back edge or top face of cover; draw tight before tying.
8. Trim ends of lace evenly.

(May also be tied on top if desired).

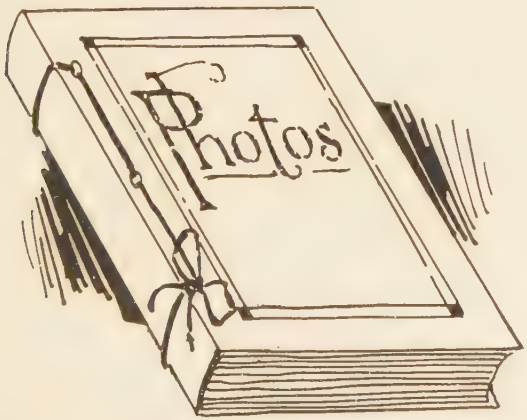


FIG. 63—COMPLETED SCRAPBOOK OR PHOTO ALBUM

Your book is now finished except for lettering. Here you may use your own ideas. It is an album with stubs be-

tween each leaf and will do for photographs, recipe clippings, as a scrapbook or a postage stamp album.

Cords, lacings or floss used in lacing must be drawn uniformly tight at each step or loose binding will result.

Ink or water colors may be employed to decorate attractively. Fig. 63 shows one idea, using white ink for decorating.

Stubs are narrow strips of same material as body of book bound in at back or binding edge to allow for extra bulk to be added to each leaf.

TEST QUESTIONS

1. Explain album style.
2. How can accurate punching be secured?
3. Is correct bulk needed for fitting cover? Why?
4. Why should cover be "scored"?
5. How should straight edge be used for cutting or trimming?

LESSON XI

GLUES AND USES—CALENDAR MAKING

To the Student—You have now become familiar with paper making, various kinds and finishes of papers, hand folding, inserting sections to make signatures, stubbing, gathering, punching, covering of booklets, stitching by hand, and also lacing, and decorating covers.

Thus far you have worked only with paste and your covers have been cut from heavy cover stock requiring no inner stiffening. There are innumerable other processes which go with those you have learned but, because of their more intricate nature and a need for further training in other lines before they are attempted, we shall pass on to distinctly different operations first. In later lessons, if you pursue the entire course, you will be taught *all* the methods referred to.

Gluing—Your experience so far with adhesives has been in using paste. Paste is used in bookbinding in many processes yet it has its limitations. Paste dries slowly, hence is easily worked on operations where it is essential to "paste-off" a quantity of material at one time and then use over a longer period or to make possible "shifting" after pasting.

Paste as an adhesive is equal in strength to glue under certain conditions and does not dry or "set" quickly.

Glue on the other hand, is very strong, sets quickly and is more suitable for many operations than paste. It does not permeate through material as readily (paste having so much more moisture than glue) and a very thin coating has all the strength of many times the same amount of paste, especially when affixing large surfaces to each other. Many materials

may not be combined advantageously with paste, while they work satisfactorily with glues.

Glue is a more workable material for binding than paste although both have their distinctive uses.

Glues for bookbinding are largely derived from the bones and hides of animals. The marrow of the bone and sinews of the hide form the needed "sticking" quality. Bookbinding glues come in three types:

1. Hard—for cover making and any adhesive work that does not require flexibility.
2. Flexible—for gluing off the backs of books after sewing, while applying materials to the backs of books to strengthen and hold the signatures together; for flexible cover making; for fastening books into their covers, etc. Flexible glue dries more slowly than hard glue.
3. Padding glue (or compound) a thick, slow drying flexible glue much used in "padding" writing tablets (or "pads") and printed forms.

Three kinds of glue are used in binderies: Hard, flexible and padding.

Many different grades of glue are available, each designed for a special purpose. Vegetable glues are also used but these will be studied later, likewise the mixing of all glues.

We shall start with the use of *hard* glue for cover making and while a gluing-off machine may be available in your school you will do your first gluing by hand with a brush.

To the Teacher—It is considered advisable for you to prepare paste, glue, etc., until pupils reach the Intermediate Course. Directions for mixing hard glue usually come with each lot from the manufacturer. These simple instructions will aid you in preparing glue if you are unfamiliar with that operation, and the next project will serve to train students in the properties and preparation of glue. You may find that your students, or at least one or two in each class are capable of preparing glue for you. They should learn as early as possible.

TEST QUESTIONS

1. What is glue?
2. What is paste made from?
3. Explain different qualities of glue and paste.
4. Would you use hard glue on the back of a book?
5. What is padding glue?

Clean Glue Pot

Dirty Glue Pot

Cleanliness is as essential in keeping glue useful as care in cooking.

Soaking Dry Glue Before Cooking
Note the absorption of water.

PROJECT 10

Preparing Hard Glue

Materials Needed: 2 pounds ground hard glue.
Water.

Tools Needed: Glue pot or kettle.
Enamel soaking pan, 2 gallon size.
Paddle.

1. Glue should absorb at least twice its own weight in water.

2. Put your glue "to soak" in an earthenware or enamel pot or pan with an equal amounts of glue and water. Put water in receptacle first, then pour glue in gradually, stirring briskly meanwhile.

3. Let it soak for three hours, frequently stirring or kneading it with the hands to eliminate hard lumps composed of dry glue not thoroughly saturated.

4. When your glue is a gelatinous, sticky mass of globules with all the water absorbed and no dry particles of glue left, it is ready for cooking.

5. A steam jacketed kettle is used in most binderies with a thermostat controlling the heat at 150° F. maximum. Your large electric glue pot or, in fact, any size glue pot will do, either dry heat type or water jacket style. It can be made in an ordinary double boiler.

6. Put in the kettle or pot an amount of water equal to that in which glue was put to soak. Heat it to at least 120° F.

7. Pour in the soaked glue slowly, stirring briskly until it is like oatmeal when first cooking.

8. Cook steadily, meanwhile stirring frequently, for two hours at 120°–150° F. (never more than 150° F.). Most glues will be thoroughly dissolved and properly diluted in that period. No harm will be done if longer cooking is required, provided temperature is retained at or below 150° F. A thermostatic control on glue pots for schools is recommended.

9. The glue when ready for hand use should be the consistency of thin syrup, with body enough to cover surfaces

thoroughly but sufficiently liquid to spread readily with a brush and become "tacky" almost instantly after it is "spread."

10. If your batch of glue is too thick, thin it with water of same temperature; if too thin add more of the presoaked glue until the desired result is obtained.

Glue, after cooking, should be kept at from 120° to 150° Fahrenheit (never more) while in use. It may be allowed to cool and then be reheated.

TEST QUESTIONS

1. Explain how heat can destroy value of glue.
2. Why should glue be soaked before cooking?
3. What heat should be used in cooking and keeping glue for use?
4. How can you regulate the consistency of glue?
5. If glue has an offensive odor what is wrong?

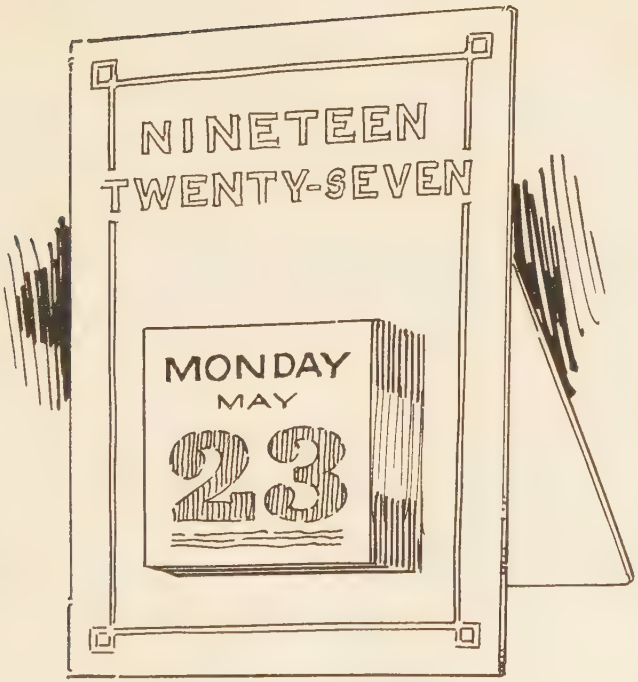


Fig. 64—Easel Desk Calendar

PROJECT 11

Easel-Type Desk Calendar

Materials Needed: 1 Sheet chip board 26″ x 32″ or 26″ x 38″ .085 caliper.
2 Sheets fancy lithograph marble or cover papers —any dark color and sizes.
1 Ready made-up calendar pads, 365 day style (two different types).
1 Foot 1″ gummed muslin tape.

Tools Needed: Scissors.
Triangle.
Straight edge.
Pencil.
Board shears.

To the Student —In this project we will make two different desk calendars and the methods used will train you in simple cover making, hinging, mounting and pressing. Do not use gluing machine (if you have one) on this project.

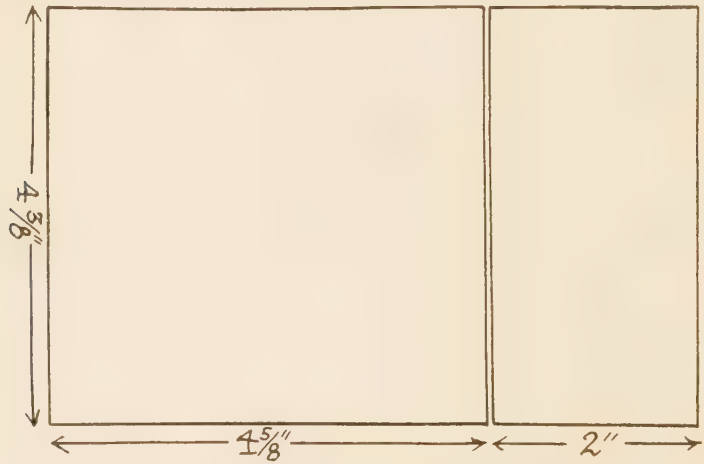


Fig. 65—Easel Boards for Calendar

First let us select a size for our first calendar $4\frac{3}{4}$″ wide by 7″ high, with an "easel" back to keep it upright on our desk and having a calendar pad holding 365 days of the year. When we are finished we hope it will look like Fig. 64.

1. Take the sheet of stiff binders board provided, test it for the grain and on the board shears cut a piece $4\frac{3}{4}''$ x 7″ with the grain the 7″ way (Fig. 66), another piece $4\frac{3}{4}''$ x 2″, grain $4\frac{3}{8}''$ way and a third $4\frac{3}{8}''$ x $4\frac{5}{8}''$, grain the $4\frac{5}{8}''$ way. (Fig. 65.)

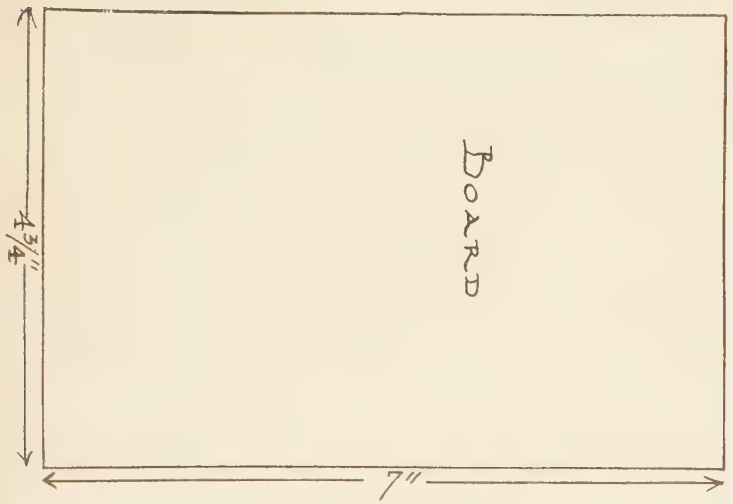


FIG. 66—FACE BOARD FOR CALENDAR

To the Teacher—Instruct in the use of board shears, squaring one edge of board, using that edge against gauge for obtaining proper right angle edge, then cutting sizes; always setting cut-off gauge where more than one piece (it is a good plan to set it for every piece) is to be cut.

As these projects will not use an entire sheet of board or paper for each student, it is well to let pupils take turns at laying out and cutting while others watch and assist, in order to economize on materials used.

The large piece $4\frac{3}{4}''$ x 7″ is your "face" board, the other two form the "easel backing."

2. Next select from the fancy papers the one you prefer for covering the "face" board. Now you need to determine

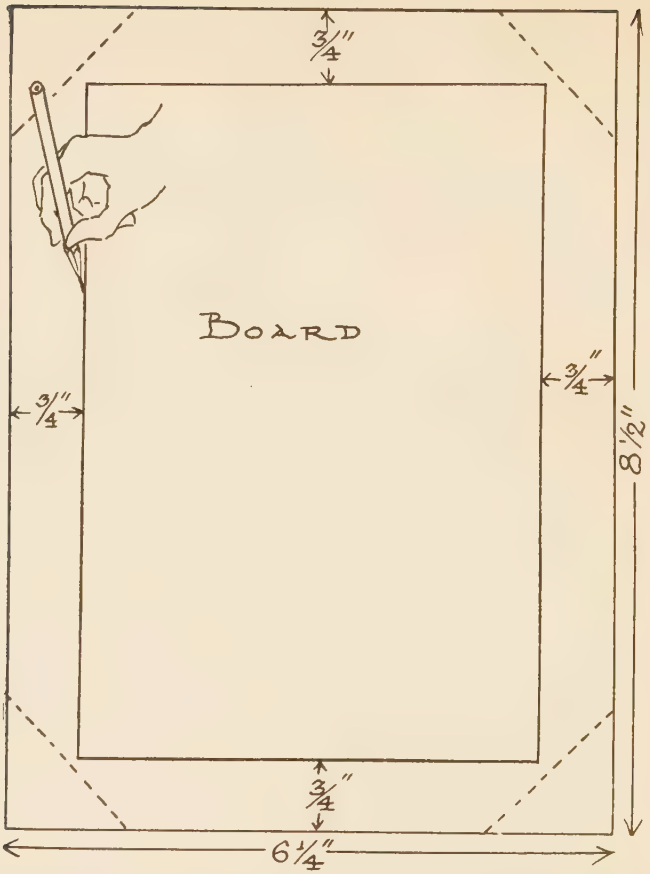


Fig. 67—Diagram of Face Board, Showing Layout and Dimensions for Covering Material. Observe Carefully the Allowance Made for "Turn-ins" and Method of Cutting off Corners of Covering Paper.

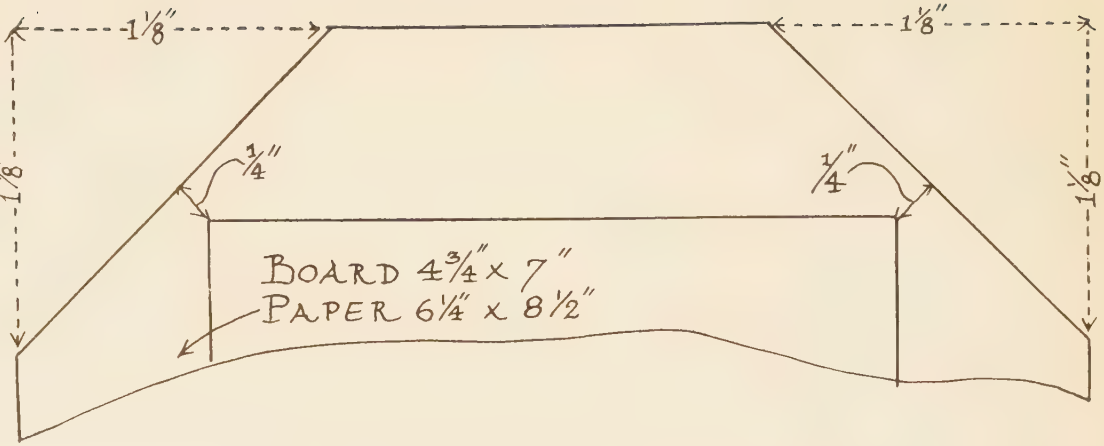


FIG. 68—ENLARGED VIEW OF CORNER CUTTING LAYOUT

the size of paper needed to cover the board. Follow the method shown in Fig. 67.

3. Now cut a piece of the fancy paper $6\frac{1}{4}''$ x $8\frac{1}{2}''$, grain the $8\frac{1}{2}''$ way. You have learned always to test grain of paper so you will do that quite naturally now.

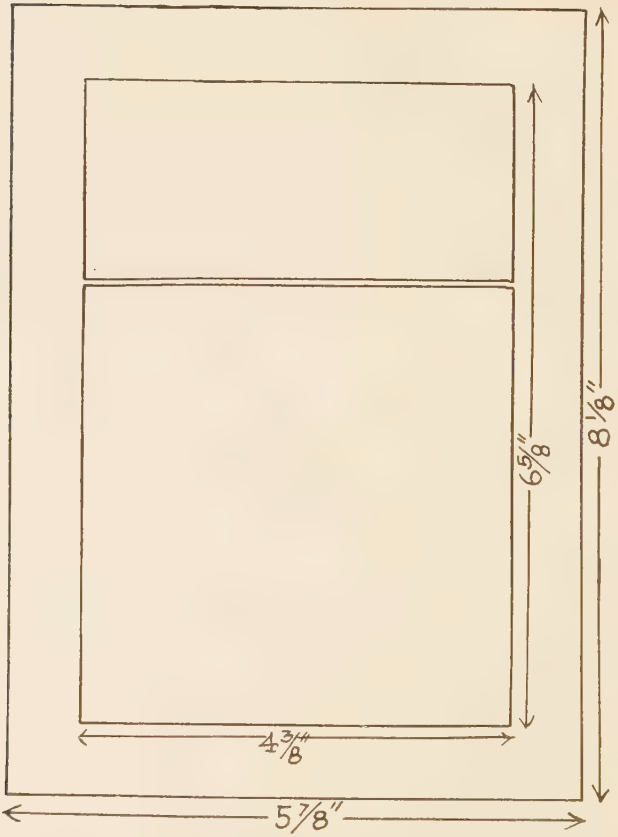


Fig. 69—Diagram of Easel Boards, Showing Layout and Dimensions for Covering Paper for Visible Side.

4. In order to turn-in the projecting edges of the paper over the board we must trim off the corners of the paper else the corners will be "bunchy," hard to make and unsightly.

Mark off on the reverse side of your fancy paper the board size equally distant from all four edges. Next mark off with triangle and pencil the corners to be cut off $\frac{1}{4}''$ from corners of board. (Figs. 67 and 68.)

If correctly measured the corners to be cut off will be $1\frac{1}{8}''$ in either direction from the *corners of the paper.*

5. Lay your board on the "face" paper and see if your measurements are correct, then cut off the four corners on your markings with shears. Put these two pieces, board and paper, aside for a few minutes while you prepare the "easel back."

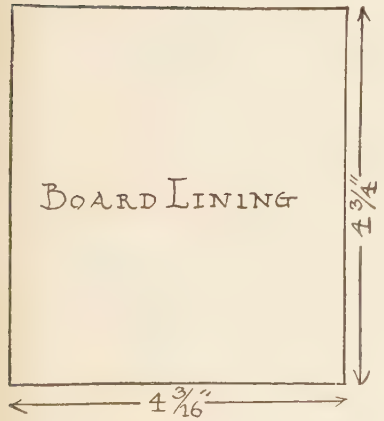


Fig. 70A—Board Back Lining Paper.

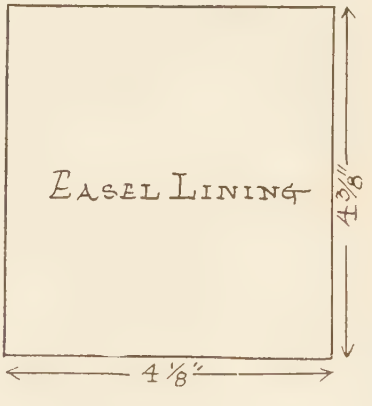


Fig. 70B—Easel Lining Paper.

6. Take the two pieces of board $4\frac{3}{8}''$ x 2" and $4\frac{3}{8}''$ x $4\frac{5}{8}''$ and lay them side by side, with edges "butted" close together. (Fig. 69.)
7. Now cut a "facing" piece of a different paper (select a lighter color but harmonious in tone) as you did for the main board. This piece with same allowance of $\frac{3}{4}''$ on all sides for turn-ins will be $5\frac{7}{8}''$ x $8\frac{1}{8}''$, grain $8\frac{1}{8}''$ way. (Fig. 69.) Cut the corners as you did on the first board.

8. Next cut a piece of the *same paper* as you have just selected *for the easel* with which to cover the inside of the easel. As the easel board is $4\frac{3}{8}$" wide and measures $4\frac{5}{8}$" to the joint where it will be glued to the back of the face board we only need a piece $4\frac{1}{8}$" x $4\frac{3}{8}$". (Fig. 70B.)
9. You will also need another piece of this same paper (like easel) for "lining-out" the reverse side of the face board ,on the lower half which will be visible when the "easel" is opened out to support the "face board." This will need to be just a little smaller in width than the easel board, which is $4\frac{3}{8}$", and just long enough to go up under the glued piece of easel which will be attached to reverse of board. Your size will be $4\frac{3}{16}$" x $4\frac{3}{4}$". (Fig. 70A.)

Accuracy in measurement and uniformity in layout must be had if completed object is to be true and finished in appearance.

Now you are ready to assemble your calendar.

TEST QUESTIONS

1. How may you secure accurate board cutting?
2. What allowance is advisable for turn-ins of covering material?
3. How does cutting board differ from paper?
4. What must be avoided in cutting board?
5. How should you measure for allowing corner cut-offs?

LESSON XII

CALENDAR MAKING—EASELS

To the Student—In your last lesson and project you prepared material for an easel calendar. Now you will assemble and complete the calendar.

PROJECT 12

Easel-Type Desk Calendar

Materials Needed: All those required and prepared in Lesson XI, Project 11.
Hard glue.
1 Bottle ready mixed gold ink.

Tools Needed:

Scissors.	Glue brush.
Straight edge.	Newspapers.
Triangle.	Brick weights.
Pencil.	Wringer.
Pen or brush.	Folder.

1. Lay on table in front of you, but leaving space in which to work:
   A. Face board and its paper cover and lining.
   B. Two easel boards and their lining and the one foot of gummed muslin yet unused.
2. Take the paper for covering the face board, lay it face downward on a sheet of clean newspaper and glue off the back of the sheet evenly, starting in the center and working toward the four edges. Hold the sheet firmly with left hand or disastrous results will be encountered.

To the Teacher—Before gluing-off calendar pieces have students practice on pieces of newspaper or scraps. Instruct them in holding paper and glue brush, the proper amount of glue to pick up in brush, how to work out surplus glue on the cross bar of the glue pot before attempting to glue off and the proper stroke in gluing to get even distribution and spread.

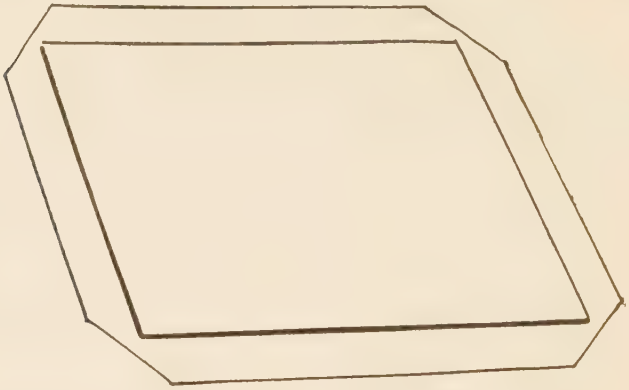
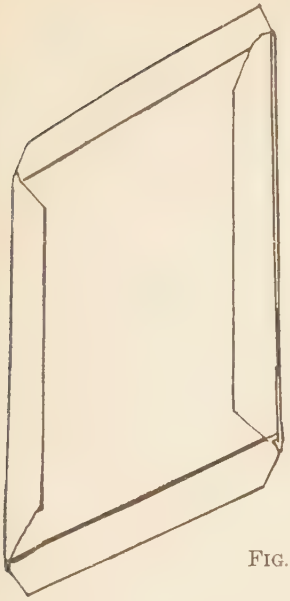


Fig. 71—Face Board Laid on Glued-off Face Paper

3. Lay your face board on the glued-off surface, positioning it $\frac{3}{4}''$ from each edge as you have already marked on the paper. (Fig. 71.)
4. Pick up your bone folder and, holding down board on paper with left hand turn the two long edges over onto the board back neatly and firmly, with paper drawn solidly over the board edge the entire length.
5. To do this slip the point of folder under paper, carry it along edge of board so that paper first adheres to edge of board, then smooth it down on back of board, drawing it tightly from edge. When you have finished it will look like Fig. 72.

It is necessary in turning in any material over square corner stiffener to "nick-in" corners of covering material after turning in two long edges before completing turn-in on two short edges else "rabbit ear" corners will result.

6. Now "nick-in" the four paper corners like Fig. 73 and turn the end flaps over onto board like the two long edges.



7. Next we must prepare the easel. Take the large piece of paper $5\frac{7}{8}''$ x $8\frac{1}{8}''$, lay it face downward on a piece of newspaper, glue off the back and lay your two easel boards on the glued surface. (Fig. 74.)

To the Teacher—This is one of the most difficult points in cover making to illustrate or teach. Considerable practice should be given on this one operation.

FIG. 72—FACE BOARD WITH TWO LONG EDGES TURNED-IN

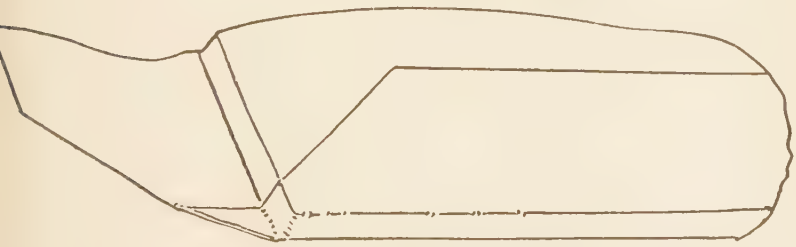


FIG. 73—NICKING-IN COVER TURN-INS

8. Turn-in the four edges as you did before, being careful to do the two long edges first. Nick the corners and complete the turning-in. (Fig. 75.)

9. Next run these through the wringer, if one is available, or lay out flat with paper over and brick weight on each. Be sure no bubbles (blisters) appear on the front surfaces of either.
10. As soon as these are sufficiently dry, take the easel board and with your knife slit the paper *turn-ins* on the two long edges where the two boards join, starting at the edge of boards, and lay the board face downward on a brick laid flat wise on table, so that the two inch wide board is on the brick and the edge of other end of board on table. (See Fig. 76.)

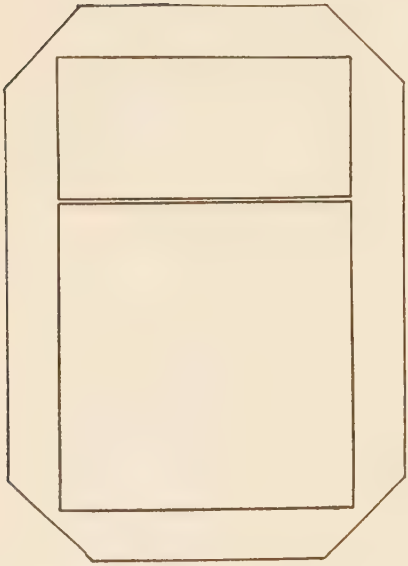


Fig. 74—Easel Boards Laid on Glued-off Covering Paper

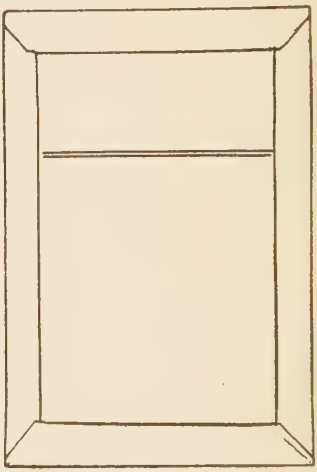


Fig. 75—Easel Covered

This causes the joint between two boards to open and prepares the easel for the muslin "hinge" to prevent it from opening too far when stood up on table.

11. While easel board is in this position cut a piece of 1" wide gummed tape 4½" long, moisten the gummed side and affix it to easel board over the joint of the two boards. (Fig. 76.)

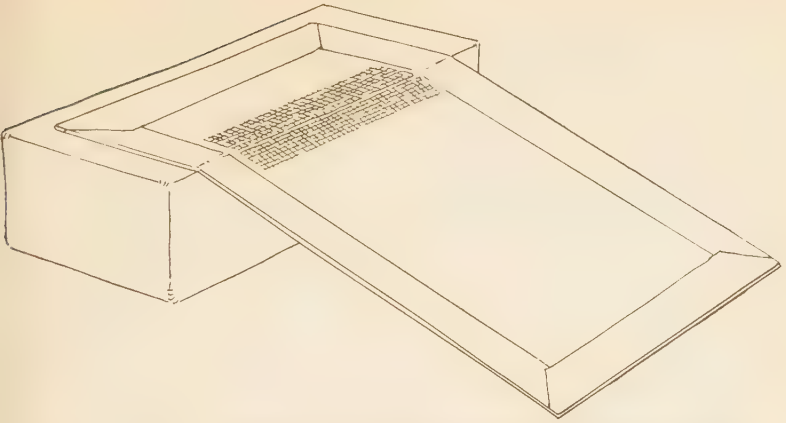


Fig. 76.—Easel Covered, Fold Joints Slit and Muslin Strip Affixed While Easel is Held in Open Position

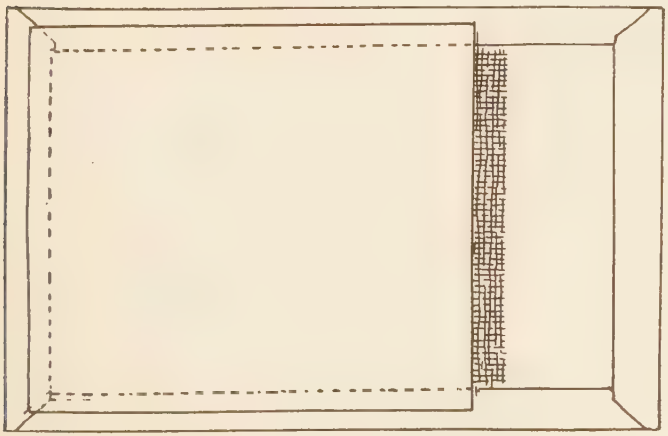


Fig. 77—Finished Easel with Lining Paper Glued to Under Side, Covering Reverse Side of Board

12. Keep it in this position until dry. Meanwhile smooth it down firmly.
13. Now glue off the piece of easel paper for lining out (piece is $4\frac{1}{8}''$x$4\frac{3}{8}''$) and mount it solid to the back of the easel board. (Fig. 77.)

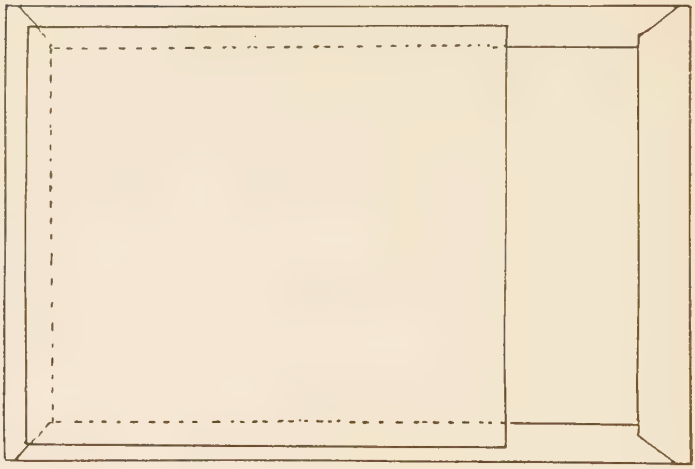


Fig. 78—Back of Face Board with Lining Paper Affixed

14. Next glue-off and affix paper back to face board. This piece of paper, the only one left, $4\frac{3}{16}''$ x $4\frac{3}{4}''$. It goes over the lower section of the board. (Fig. 78.)

In gluing off great care must be exercised in spreading glue evenly and to avoid smearing OUTSIDE of materials.

15. Turn the easel board face down on a piece of newspaper, place another piece of paper over the large lower portion of the easel and *glue-off* carefully the narrow board back of the easel (this is the 2″ wide piece). Affix this carefully to the back of the face board, *at the top* where your lining paper does not cover it. (Fig. 79.)

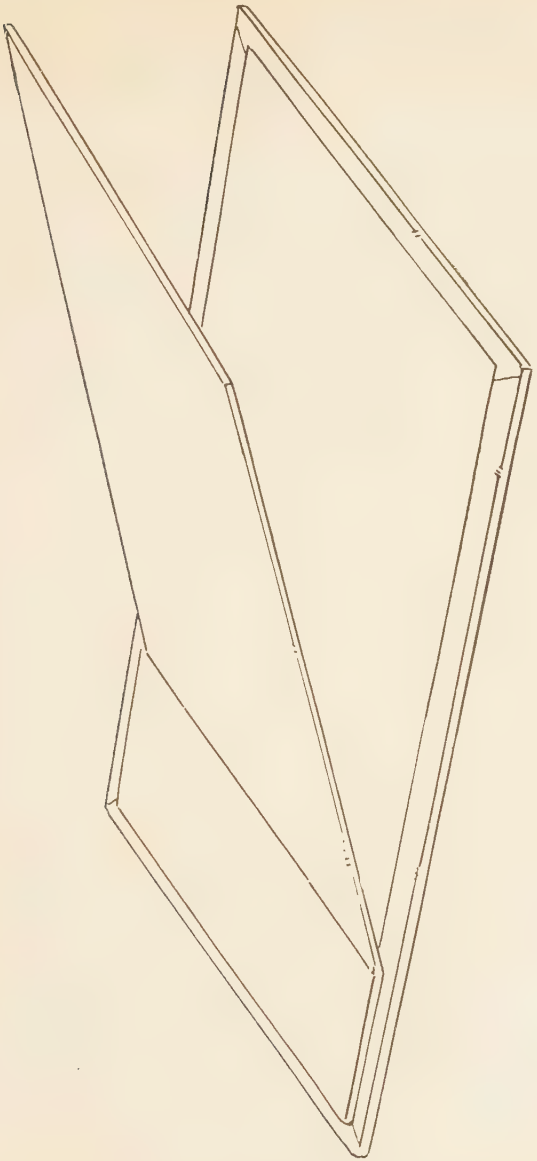


Fig. 79—Easel Attached to Back of Calendar Face Board

16. Press this carefully until absolutely dry and firm.
17. Turn the easel back downward, laying calendar board face up, take calendar pad measurements and, by dots, indicate where you will place it on face.

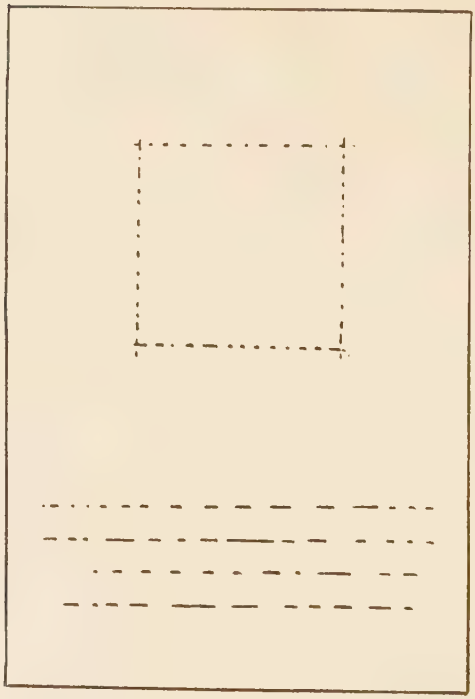


Fig. 80—Layout of Face of Calendar for Lettering and Position of Calendar Pad

18. Draw in your lettering in gold ink, first penciling the letters, afterwards using stub pen or fine pointed brush (Fig. 80). Finally glue off the back of calendar pad, affix it to board in position and press until dry. Your easel type calendar is now complete and if you have followed instructions diligently it is a neat product well worth saving or for use as a gift.

Easels are made by jointing two boards together with muslin. Proper "stance" is given by gauging "spread" of easel "leg."

TEST QUESTIONS

1. What difficulties did you encounter in gluing?
2. How should pressing and drying be done?
3. What little "trick" is there to making a neat corner?
4. How should material be cut to allow for corner turns?
5. If you make another easel calendar how would you improve your work?

LESSON XIII

CALENDARS—COVER MAKING

To the Student—In your last two lessons and projects you have learned how to cut boards, covering materials, prepare for and do gluing-off of covering materials, make cover boards by turning in materials over boards, and make, reinforce and affix "easel" backs.

The next project given in this Lesson requires all the knowledge gained thus far. You will be allowed to proceed much on your own initiative. Go carefully and you will be pleased with your workmanship.

PROJECT 13

Wall-Type Calendar

Materials Needed: 1 Sheet .085 caliper board.
1 Sheet fairly smooth surface cover or fancy paper.
1 Sheet lighter color and weight cover.
1 Calendar pad, 12 months, about 3″ x 5″ stitched or wired together.
¼ Yard No. 2 mercerized silk cord.
1 Picture cut from a magazine.

Tools Needed: All those used in Project 11.
⅛″ Round hand punch.
Pasting board.
Paste brush.

The calendar to be made is the hanging type, stiff board, covered two sides, with cord with which to hang it on a wall, a picture and a calendar pad. When finished it should look like Fig. 81.

FIG. 81—FINISHED CALENDAR

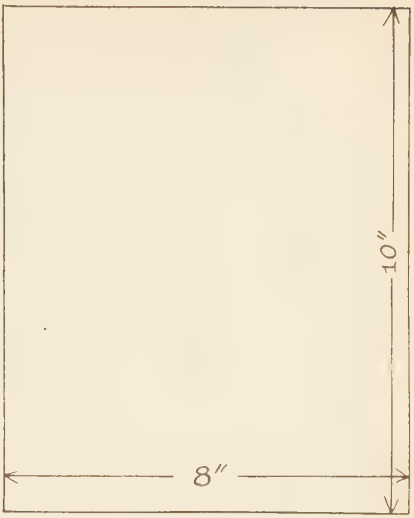


FIG. 82—CALENDAR BOARD

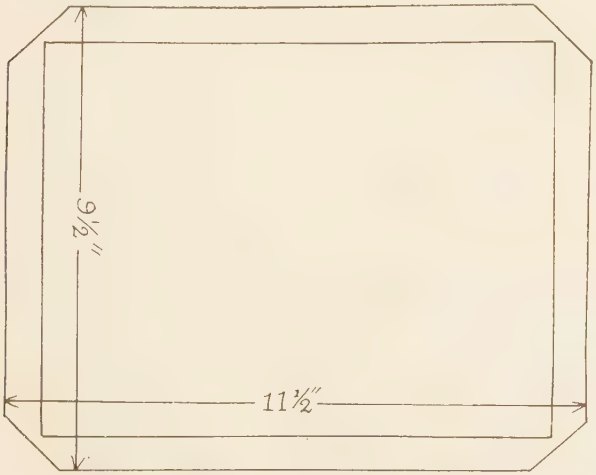


FIG. 83 –DIAGRAM OF CALENDAR BOARD AND COVERING MATERIAL FOR FACE

Follow this plan:

1. Cut board 8″ x 10″. (Fig. 82.)
2. Select and cut paper for covering $9\frac{1}{2}$″x$11\frac{1}{2}$″ and cut corners. (Fig. 83.)
3. Cut backing paper $7\frac{3}{4}$″ x $9\frac{3}{4}$″.
4. Select picture in colors for front about $6\frac{1}{2}$″ x 5″ and trim carefully.

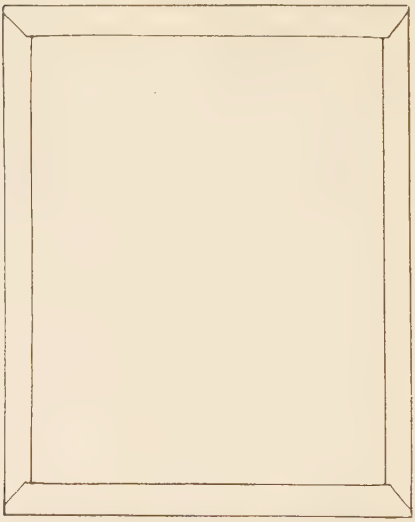


Fig. 84—Calendar Board Covered with Paper for Face Side

5. Glue-off paper for covering, lay on board, turn in four edges—being careful to "nick-in" corners—press. (Fig. 84.)
6. Glue-off and mount lining paper to reverse side—position carefully $\frac{1}{8}$″ from each edge—press. (Fig. 85.)
7. Lay picture and calendar pad on board and find most attractive position. Mark in pencil dots for guidance.
8. Paste-off picture on pasting board, affix and press. (Fig. 86.)

Pasting or pasting-off is easier to perform than gluing-off.

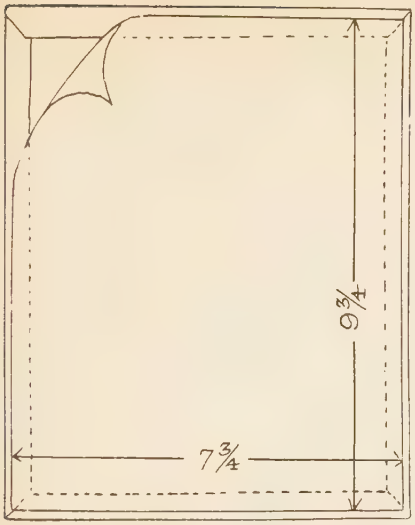


FIG. 85—DIAGRAM OF LINING PAPER FOR BACK OF CALENDAR BOARD

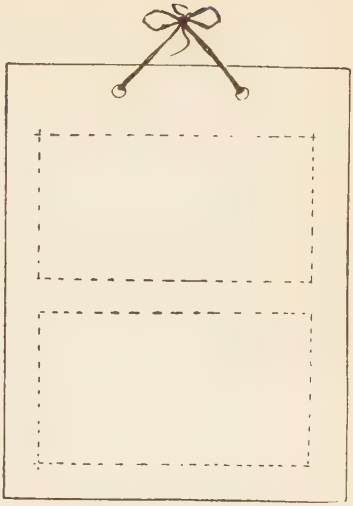


FIG. 86—POSITION OF PICTURE AND PAD ON FACE OF BOARD

FIG. 87—DIAGRAM OF HOLES FOR CORD HANGER

FIG. 88—CORD POSITION

9. Glue off calendar pad, affix and press. (Fig. 86.)
10. Measure off along top edge of board $2\frac{1}{2}''$ in from each side edge and $\frac{3}{4}''$ down from top of board and punch two $\frac{1}{8}''$ round holes—punch from front of board through to back. (Fig. 87.)
11. Put cord through two holes and tie bowknot at top—allow knot 3″ distance from either hole. (Fig. 88.)

Punching paper or board with hand punch and hammer necessitates laying material on a wooden or pulp board, otherwise a ragged hole results.

This is the first project on which you have worked largely by yourself. Are you pleased with your work? Can you do better next time?

TEST QUESTIONS

1. Of what use is a folder in making covers?
2. In what way is the use of glue brush like a paint brush?
3. How can you eliminate "bubbles" or "blisters" on covers?
4. When will materials that have been glued-off not stick when turned-in?
5. Should the glue brush be used when full of glue?

LESSON XIV

BOOK CLOTH, MANUFACTURE AND USES

To the Student—You have gained some experience in the cutting of materials, in gluing-off papers and in turning-in paper covers over board stiffening. Now we will attempt the use of book cloth for covering. Before undertaking any project involving the use of book cloth you should know something about book-cloth manufacture.

Book Cloth—Historical Outline—Book cloth first made its appearance about 1820 in England. The early efforts to produce a glazed surface calico for book coverings left much to be desired. By 1840 the English manufacturers had successfully developed a suitable material, and about 1872 the first book-cloth mill was established in the United States, at Staten Island, N. Y., There are now five manufacturers actively engaged in book-cloth making in this country.

Manufacture—Book cloth is made in several grades, many colors and a variety of patterns or grains embossed in the cloth. The grade is largely a matter of the quality of cotton fabric used as a base, the number of coatings given the cloth and the strength and wear resisting properties of the finished goods. For example the very cheapest qualities ordinarily called "linens" are made on the lightest quality cotton goods, quite open in weave and light in weight; the buckrams on the other hand are made up of a cotton base goods quite strong, closely woven and of best grade cotton.

The general process of manufacture is quite similar. The woven cotton cloth or "gray" goods as it comes in large rolls from the looms is first bleached. Bleaching consists of

running it through a vat containing a "chemical liquid" designed to soak out the vegetable oil remaining from the raw cotton, allowing the wet goods to lie in wooden drainage vats until the liquid has performed its function and been drained off; following this the cloth runs through "washers," huge rollers immersed in clean, fresh water constantly changed, until all the chemical solution has been removed; then cooking the cloth in steam "keirs," large steel tanks in which the cloth, rope fashion is packed, the keir filled with caustic soda, sealed tightly and the contents cooked under high steam pressure for from six to twelve hours. Next the cloth "rope" is again run through two "washers" into other drainage vats, from these vats through a machine that straightens it out into a wide web again, and finally over a "tentering and drying frame" which stretches the damp cloth to maximum width and dries it thoroughly.

Now the actual book-cloth making process begins. These bleached white rolls of cotton cloth are run through dye "jigs" (vats filled with hot coloring dye) in which the cloth gets a saturation of the same color as the surface "padding" or "filler" to be applied. From the die jig the colored cloth is transferred to an "opaque" machine (so-called because it fills and coats the cloth so you can no longer "see through it"). Here the cloth is fed through many series of rollers during which time pigment color, which has already been cooked and mixed in steam kettles with starch, gums and other chemicals, is forced onto one side of the cloth from a "fountain" box and the surplus scraped off by a steel plate over which that side of the cloth is drawn as it goes forward in the machine. This machine has many "cans" or heated cylinders over which the cloth passes and is thoroughly dried in its progress. This same process is repeated from one to three times depending on the quality to be produced.

The dyed and coated (filled) cloth is next subjected to a "sprinkling" or "mist spray" to dampen it to the exact degree required and run through huge "calenders" as on a paper machine. These calenders are larger and more powerful pressure is used than on paper; the cloth emerges uniformly finished smooth, but dull on the surface, and a bit less smooth but uniform on the reverse.

Embossing is accomplished by feeding the "linen or vellum" finished cloth through another series of rolls, one a steel roll engraved with the pattern desired, the other a compress paper matrix roll, both running snugly fitted together and the steel roll heated by steam. The cloth emerges with a beautiful, uniform, lasting grain in rolls ready for use. These large rolls (500 to 1000 yards) are now inspected, the goods rerolled in rolls of a size to suit customer's requirements and the cloth is ready for *your* use.

Book cloth comes in standard widths of 36, 38 and 40 inches across the roll and 40, 80, 120 or more yards to each roll or piece.

Book cloth has "grain" just like paper and it runs as on a paper machine, down, not across, the roll. It may be "torn" or "ripped" *down* the roll but *must* be *cut across* the roll.

Book cloth cannot be cut like paper, at least not until it has been "sheeted" from the roll.

To the Teacher—Have sample pieces of several grades of book cloth ready for explanation of qualities, and demonstrations as to tearing, strength, grain and possibility of "ripping" with the grain. These grades suggested:

Holliston or Interlaken—Sterling or Imco Linen.
" " " —Rex or Vellum de Luxe.
" " " —Commons.
" " " —Aldine or Art Vellum.
" " " —Record or Art Canvas Buckram.
" " " —Library Buckram.

Book cloth grain runs DOWN the piece. Book cloth may be "ripped" DOWN the piece but must be CUT ACROSS the roll.

In your next project you will attempt the use of book cloth in place of the covering papers heretofore used. Note carefully the different grades of cloth, the variety of patterns and the textures of each.

PROJECT 14

Book-cloth Cutting, Pasting and Gluing

Materials Needed: A variety of scrap pieces of book cloth and board, sizes large enough to handle easily.
Glue and paste.

Tools Needed: All usual tools.
Glue and paste brushes.

1. Select 6 pieces of board that you intend to cover with cloth.
2. Square these on board shears or by using T-square, straight edge and knife.

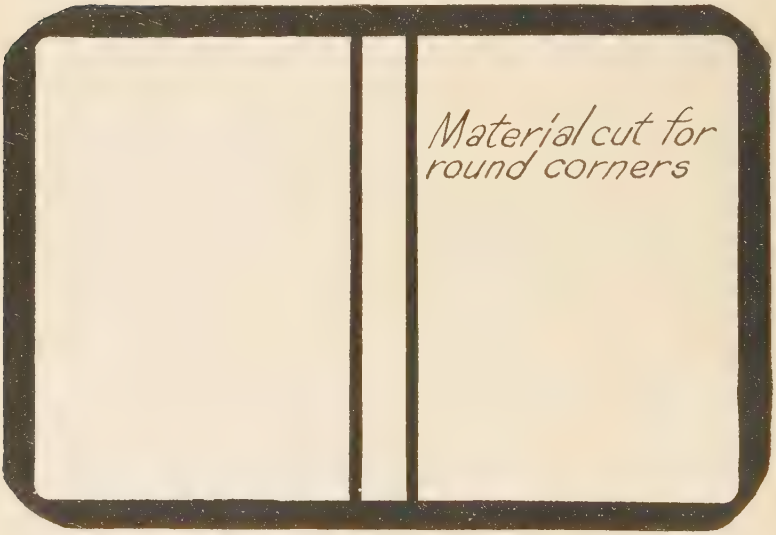


Fig. 89—Boards and Covering Material Cut for Round-cornered Cover

3. Cut a few with round corners (in order that you may learn how to turn in a round-corner cloth cover).
4. Select the book cloths you intend using and determine size required as learned previously.
5. Cut the book cloth to size allowing $\frac{1}{2}''$ turn-in all around.

In cutting corners on cover material to be turned in over round-cornered boards you must use greater care to allow for turn-in of material and to avoid "bunchy" corners. More material must be disposed of in the turning-in of material over round corners, hence the necessity of eliminating as much as possible in the corner cutting of material.

Method of "Picking-in" Round Corners

6. Try "ripping" the cloth to size for two or three of the board coverings—note your difficulties.
7. Lay each board on the cloth cut to size and mark your corner "cut-offs." (Look at Fig. 67, Page 182, to refresh your memory on how to determine corners.)
8. Cut your round corner material like Fig. 89, Page 204.
9. Glue-off a piece of cloth (reverse side), lay on a square corner board and turn in material. Be careful to rub down surface, using a heavy piece of paper laid on cloth and flat surface of your folder. "Nick" your turn-ins uniformly.

10. Now try a round-cornered board after gluing off material; lay on and position board and turn in four straight edges but not the corners, except as they turn-in with the edges.

11. Take your awl and turn in the four corners, drawing the material "fan-like" toward a central point. (See Fig. 91, Page 207.)

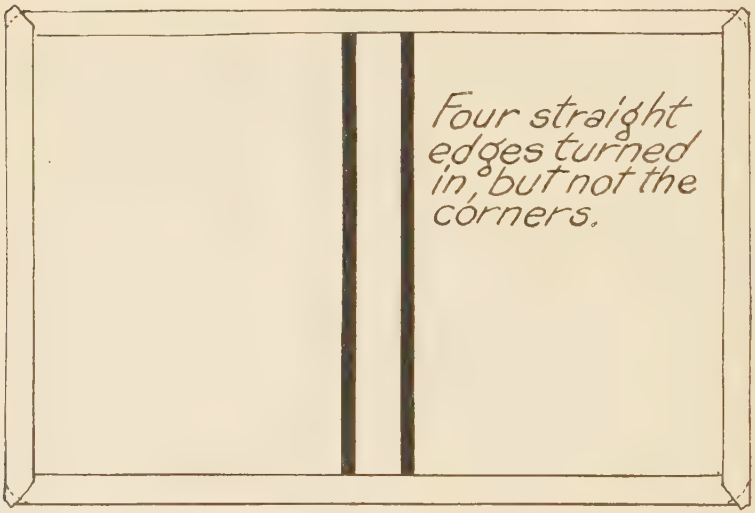


Fig. 90—Four Edges Turned-in Preparatory to "Picking-in" Corners. Dotted Lines Indicate Rounded Corners of Boards Underneath

Work awl point carefully to avoid tearing cloth, in a movement *from* edge of corner toward center of board.

12. Finish corner by tapping gently with flat face of your hammer.

Paste dries more slowly than glue, has more moisture and permits "shifting" material.

13. Next try a library style round corner, cutting your material in same way but having only three "laps" in corner. (See Fig. 92, Page 207.)

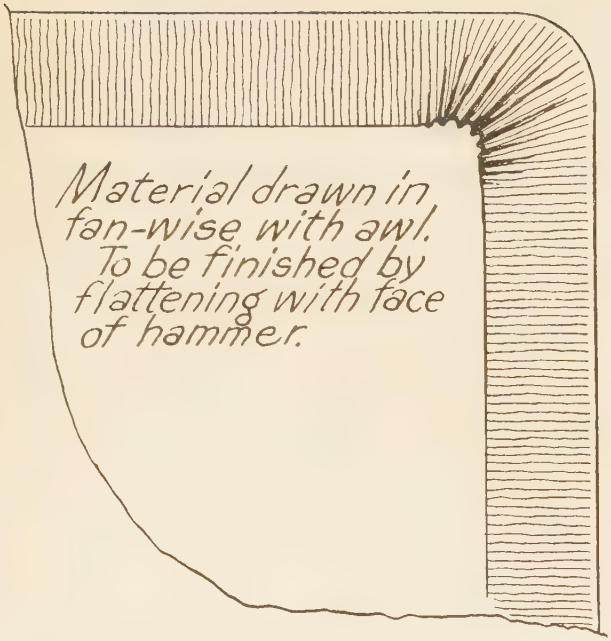


Fig. 91—Standard Round Corner Turn-in

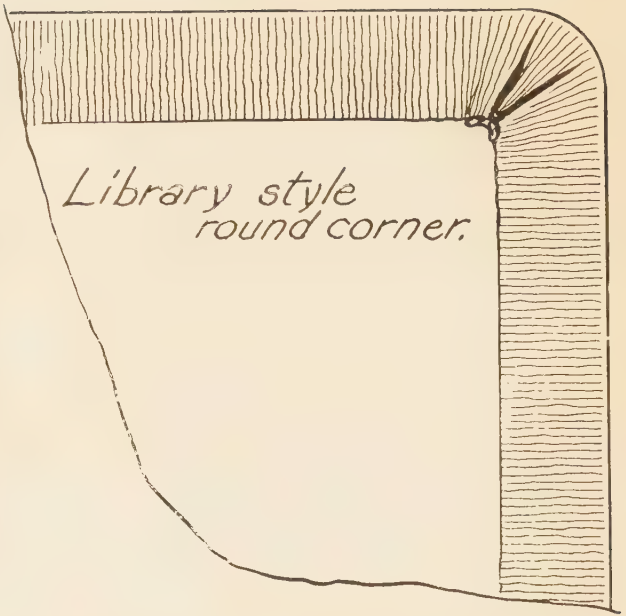


Fig. 92—Library Style of Round Corner—Note Laps instead of "Picked-in" Corner

The standard width of book cloth is 38″ across the roll and standard length 40 yards. Cheaper goods come 36″ wide and 60 yards long.

14. Experiment next by using paste instead of glue and note difference in use.

TEST QUESTIONS

1. What is book cloth?
2. When was book cloth first used and where?
3. What grade of cloth would you select for durability?
4. Are you sure cloth has grain? How can you tell?
5. What is "ripping" book cloth?
6. How are materials for round corners cut?
7. What is difficulty in turning-in round corners?
8. Explain difference in round corners.
9. Do you prefer glue or paste as a cover material adhesive?
10. Why?

GROUP PROJECT

Cloth Cutting Table

To the Teacher—A book-cloth cutting table is a valuable piece of equipment. If you cannot afford the standard table available, make one for the schoolroom following these directions. This project is not obligatory and may be omitted if desired.

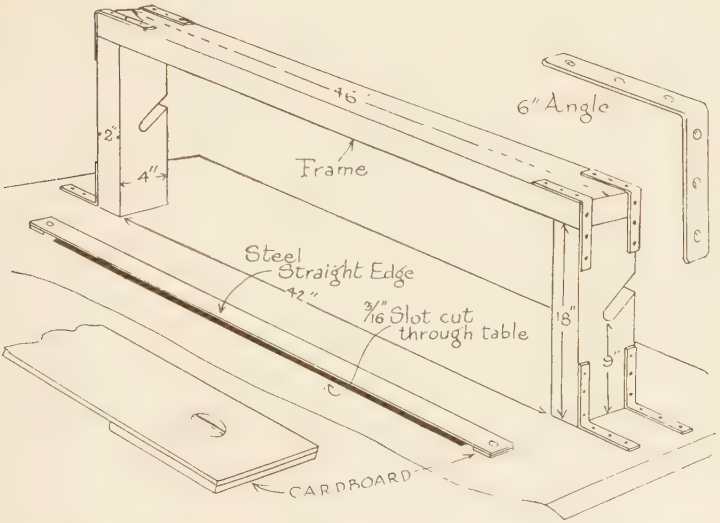


Fig. 93 Construction Diagram of Frame, Corner Irons, Slots for Rod, Cutting Straight Edge and Knife Slot for Cloth Cutting Table

1. At one side near one end of any bench or table to be used for cloth and leather cutting (with bins underneath or nearby) build a frame of 2″ x 4″ pine joist, planed four sides. (Fig. 94.)

2. The two uprights should be 18″ long, and spaced 42″ apart; the top piece nailed securely to the two uprights and reinforced with 1″ wide iron straps bent at right angles, drilled and countersunk for screws, each angle 6″ long. (Fig. 93.)

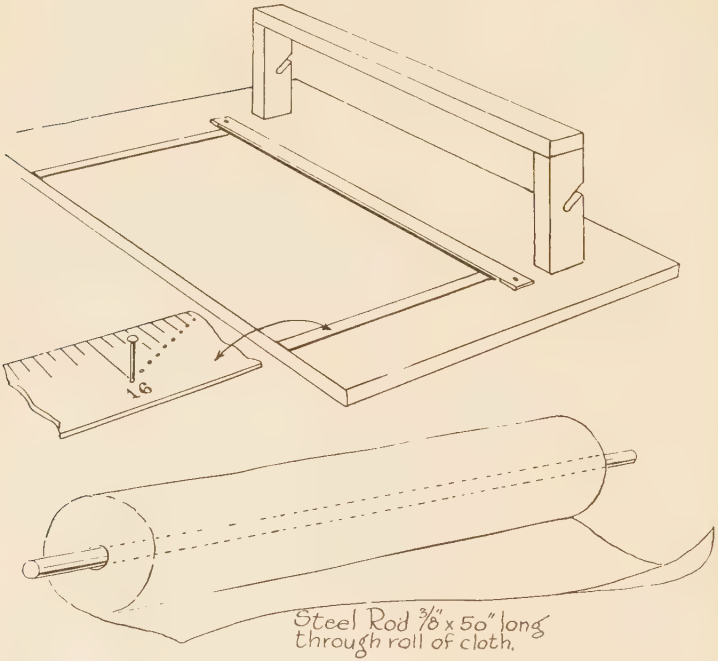


Fig. 94

3. Before erecting cut two diagonal slots on the *outer* edge of the two uprights with centers 9″ from table, slots ½″ across (to take ⅜″ steel rod). (Fig. 93.)

4. Secure a ⅜″ diameter (hardened) round steel rod 50″ long. (Fig. 94.)

5. Secure two 1″ wide brass rule strips 36″ long with $\frac{1}{8}$″ marked gradations. Have these drilled with a $\frac{1}{16}$″ hole centered in each $\frac{1}{8}$″ gradation. In each two inch distance have drilled for $\frac{3}{8}$″ long screws to hold to table. (Figs. 94–95.)
6. Buy one dozen brass escutcheon pins small enough to fit in these holes. (Fig. 95.)

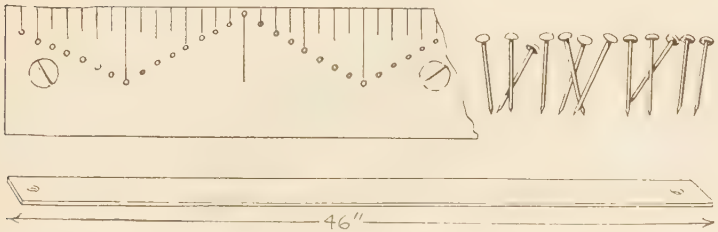


FIG. 95—DIAGRAM OF STRAIGHT EDGE AND RULE STRIPS DRILLED FOR SCREWS AND PINS

7. Buy a steel straightedge $\frac{3}{32}$″ to $\frac{1}{8}$″ thick, 46″ long, 2″ to 3″ wide. (Fig. 95.)

   Have it drilled for two screws each centered 1″ from either end.
8. Assemble and erect rack at far side (or at end of table if table is wide enough for 50″ area needed for rack). (Fig. 93.)

FIG. 96—CLOTH CUTTING KNIFE

9. Place straight edge on table in front of rack and parallel to it at a distance across table from you convenient for reaching. Cut a slot through table at straight edge side nearest you $\frac{3}{16}$ wide and 42″ long; fasten straight edge securely to table with screws at each end, first cutting and placing a piece of thin cardboard 2″ long and the width of straight edge under ends of straight edge to raise it about $\frac{1}{8}$″ from table.
10. Sink two brass rule strips in table at right angles to rack and straight edge, starting from the straight edge.

Afterwards drill through each $\frac{1}{8}$ placed hole into table $\frac{1}{4}$" depth to receive pins.

Your finished rack will look like this:

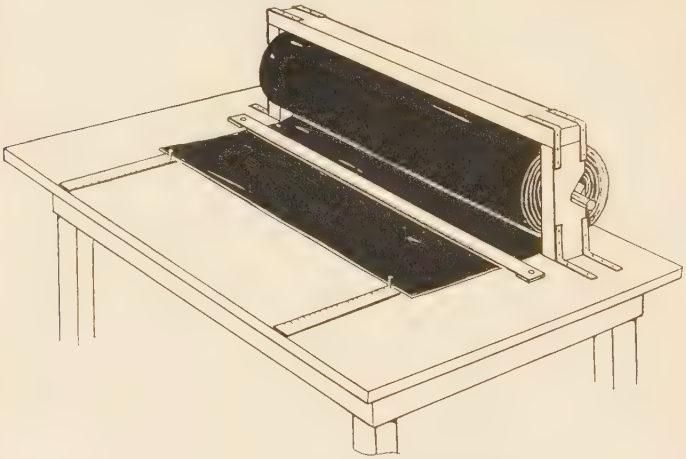


Fig. 97—Top View of Assembled Rack

In use you slip steel rod through center of cloth roll, drop ends of rod into slots in *back* of rack uprights, draw cloth from roll *toward you under* straight edge.

Suppose you wish to cut strips 12" wide and the length of the roll width; you set a pin in each gauge strip 12" from straight edge; pull cloth through under straight edge up to the two pins, hold it down with one hand while with a sharp knife held in other hand you *slit* the cloth along straight edge *in slot.*

Laying aside the cut piece you *push* the cloth coming from the roll through under straight edge until you can grasp it *in front* and repeat as often as desired. Cloth strips may then be cut singly on a board or card shear or in piles in cutter; or by hand with shears or straight edge and knife.

LESSON XV

LOOSE-LEAF COVER MAKING

To the Student—You should have a binder in which to keep your loose-leaf note sheets, work sheets and samples of materials. We propose to make one of cloth. Follow instructions accurately.

PROJECT 15

Loose-leaf Binder

Materials Needed: $\frac{1}{2}$ Yard cloth.
1 Sheet 26″ x 32″—25 board.
2 McGill fasteners $\frac{1}{8}$″ x $1\frac{1}{4}$″, round head.
4 Eyelets $\frac{3}{16}$″ diameter (can be omitted).
1 Sheet cover paper.

Tools Needed: All regular tools and $\frac{3}{16}$″ eyelet punch and set (can be eliminated if desired).

The sheets this binder must hold are $8\frac{1}{2}$″ x 11″, so our binder must be large enough to take these comfortably and we will allow $\frac{1}{2}$″ for bulk. It must open freely so it should have hinged covers front and back.

To the Teacher—It is best not to use a pattern cloth for this binder unless a Silk, CM or all-over pattern is selected. T pattern *must* run *up and down* the cover and is more difficult to cut and handle. Explain the placing of T pattern—*never across the cover.*

Consult Fig. 98 which shows binder we intend to make, also Fig. 99 for complete layout of cover materials. Check your measurements carefully as you proceed.

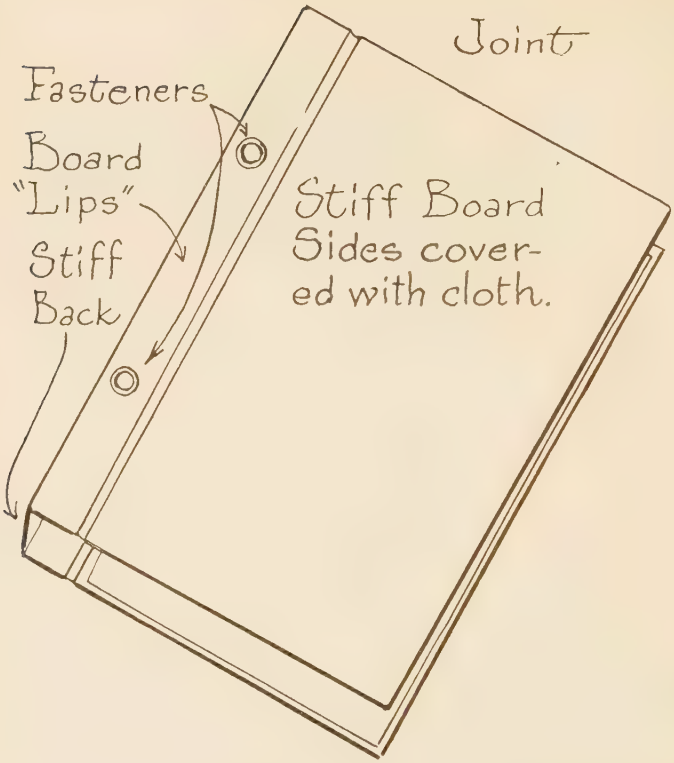


Fig. 98—Diagram of Complete Binder Cover

(The openings marked "fasteners" may be protected with "eyelets" if cord or McGill "fasteners" are to be used. With "Chicago Posts" no "eyelets" are necessary.)

Proceed:

1. Cut piece of cloth 21½″ long and 12½″ wide, grain 12½″.
2. Cut two boards 8¾″ x 11½″, grain 11½″.
3. Cut 2 boards 11½″ x ¾″, grain 11½″.
4. Cut board 11½″ x ½″, grain 11½″.
5. Lay out your boards on cloth as shown in pattern; ¾″ allowed all around for turn-in, ⅛″ between all boards, all boards

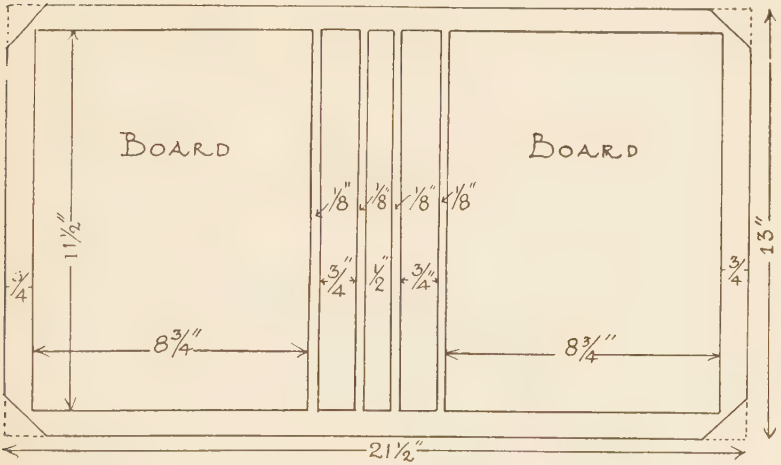


FIG. 99—DIAGRAM OF BOARD POSITIONS AND MATERIAL CUTTING

aligned top and bottom and placed *square;* mark position of each on reverse side of cloth.

6. Mark and cut off corners.
7. Glue-off reverse side of cloth, keeping flat on table.
8. Lay on boards as orginally marked.
9. Turn-in edges, first two long sides, "nick-in" corners and turn in two short sides.
10. Run through wringer and press, or press carefully between paper or boards until dry.

Now you are ready for lining-out.

1. Cut piece of cloth (same as outside) 4″ x 11″—grain 11″.
2. Cut 2 pieces of cover paper 8¼″ x 11″—grain 11″.

Lay cover face down on table, inside *up*.

1. Glue-off reverse side of cloth and place over board joints from one large board to other. (Fig. 100.)
2. Rub down carefully with hands and by running bone folder into spaces between boards.

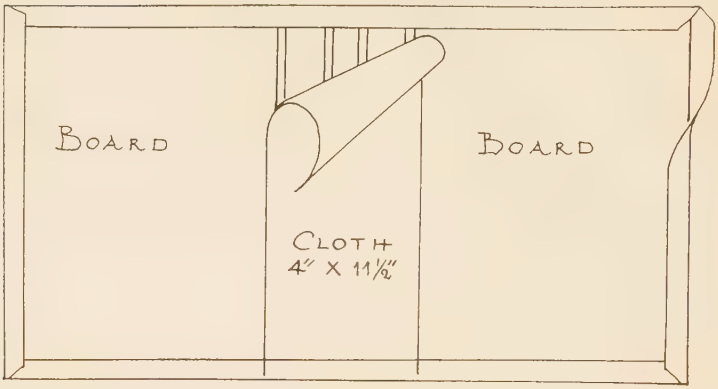


Fig. 100—Mounting Cloth Lining over Inside Surface of Boards

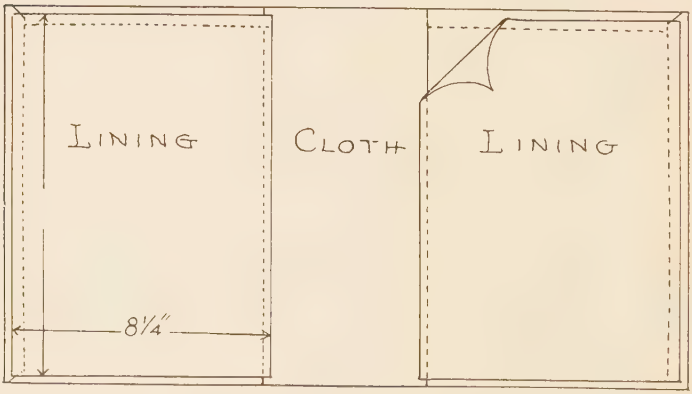


Fig. 101—Diagram of Position and Mounting Lining-out Papers

3. Glue-off papers one after another and mount on inside of covboards. (Fig. 101.)

You are now ready to punch holes for fasteners (and eyelets, if you have them to use).

1. Fold your cover over this way. (Fig. 102.)

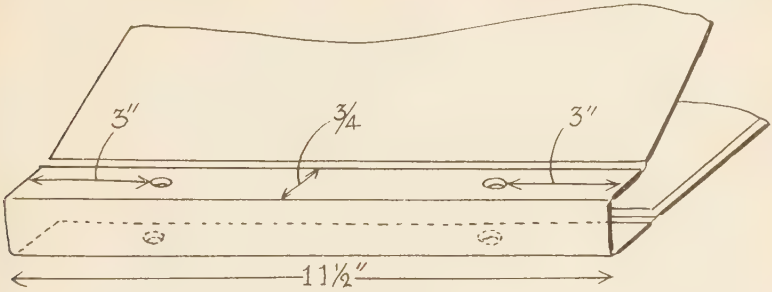


Fig. 102—Diagram for Position of Post or Fastener Holes

2. Mark off on top narrow strip and bottom narrow strip two hole positions each centered $\frac{3}{8}$" in on $\frac{3}{4}$" width and 3" from top and bottom edges. Punch these holes from outside of cover using $\frac{3}{16}$" eyelet punch or $\frac{3}{16}$" round hole hand punch.

If eyelets are used, select shade to harmonize with cover cloth and have finished side of eyelet outside when clinched in.

To the Teacher—If Eyelets are used, training should be given previously in use of eyelet machine and proper setting of eyelets.

Fig. 103—McGill Fastener and Washer Chicago Screw Post

3. Put your two McGill fasteners through holes, top downward and bend over at back, first slipping washers over ends of fasteners.

Metal posts having screw top-heads may be used if desired; these are called "Chicago Posts."

A shoe string cord may be used in place of fasteners if eyelets are used. (Fig. 104.)

You may design, letter and glue on a label if you desire. (Fig. 105.)

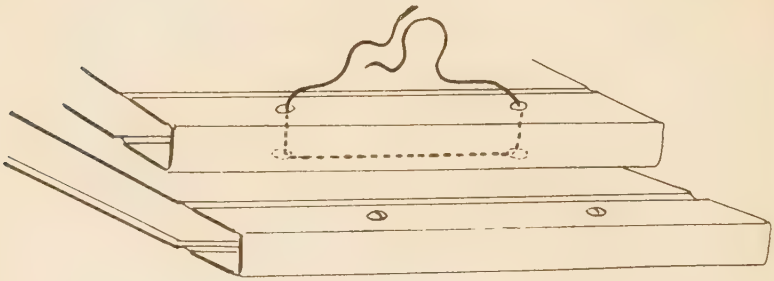


Fig. 104—Upper, Method of Inserting Cord, if Used; Lower, Chicago Posts Inserted

TEST QUESTIONS

1. How does gluing cloth differ from paper?
2. Why must "valleys" between boards on *inside* of cover be rubbed down?
3. What happens when you "clinch" eyelets?
4. Why did you use three pieces of board in back of cover?
5. Is your cover square and true?

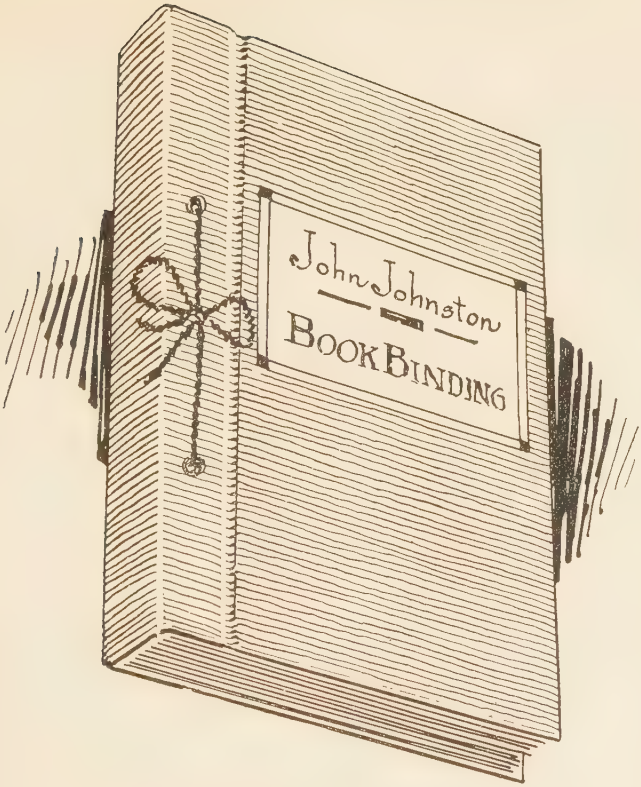


Fig. 105—Finished Loose-Leaf Binder Cover with Full Capacity of Leaves Inserted, Cover Decorated with Label and Tied with Cord

LESSON XVI

LEATHERS FOR BOOKBINDING

To the Student—In the preceding lessons you have learned much about the various materials employed in bookbinding (and in general bookmaking), now we take up the use of leathers.

Leather, as a technical term in bookmaking, is the skin of an animal properly tanned to insure long life, flexibility and fine appearance.

Leathers for bookbinding come from many animals and all parts of the world. The most common leathers used are:

Morocco—the skin of a goat.
Sheepskin—the skin of a sheep or lamb.
Cowhide—the hide of a beeve.
Pigskin—the hide of a pig or hog.

Morocco, sheepskin and cowhide are used in many different "weights" or thicknesses and obtainable in a great variety of colors and "grains." Grain denotes the pattern appearing on the surface or "right-side" of leathers.

Morocco, or goatskin, as it is properly termed, when tanned, colored and finished without artificial graining, produces a beautiful "natural grain." The size of the "grain" varies with the size and age of the animal and also the particular species of goat. The goatskin preferred above all others for bookbinding is obtained from goats raised in the vicinity of the Himalaya Mountains of India, and termed "East Indian goat." The skins are quite uniform in size, shape and surface.

Leathers have fibrous "grain" and also a surface "grain."

The natural grain is firm, regular and not overly large. Bear in mind that any desired grain can be obtained in goatskins, as in other leathers, but for such grains artificial methods must be employed by the tanners.

Goatskins from the French Congo or Levant are noticeable because of their large, prominent, natural grains. These goatskins are termed Levant or French Levant.

Practically all the good quality goatskins produced in the world are marketed through English hide merchants. Thus it follows that a goodly portion of our bookbinding moroccos come from or through England, either in finished or raw state. American tanners usually import their raw hides "in the pickle" or "in the crust." "In the pickle" indicates wet skins thoroughly saturated with a brine that preserves the raw hide; "in the crust" denotes dry, salted skins. Neither method seriously affects the final quality of the goatskin.

As you progress in bookbinding technique you will hear more about goatskins, especially "acid-free" tannages, which refer to the tanning methods by which the raw skin is freed from all animal grease, the natural grease and oil replaced by vegetable solutions to preserve the skin and give durability. Usually, acids are employed, which tend to be harmful to the wearing qualities of the leather.

Sheepskins come largely from Australia, New Zealand, India and South America. Cowhides from South America and our own country.

Many goat and sheep skins are too thick and unyielding in their natural state to make good leather for bookbinding or for many other purposes. To overcome this, they are "split" into two or more skins, that is, each skin is by means of a remarkable machine actually "split" uniformly apart so that two or three, sometimes four, different "skins" are obtained from the same hide. These additional skins are called "splits" and only the original skin which retains the outer natural surface of the goat or sheep's hide is termed goatskin or sheepskin or cowhide.

These "inner" splits are given various names according to their usefulness and relation to the outer surface "or hide." Goat "splits" are also termed "goat-skivers"; sheepskin splits

are always termed "skivers" or "fleshers" (i. e., nearest the flesh side of the hide); cowhide splits are called "buffings."

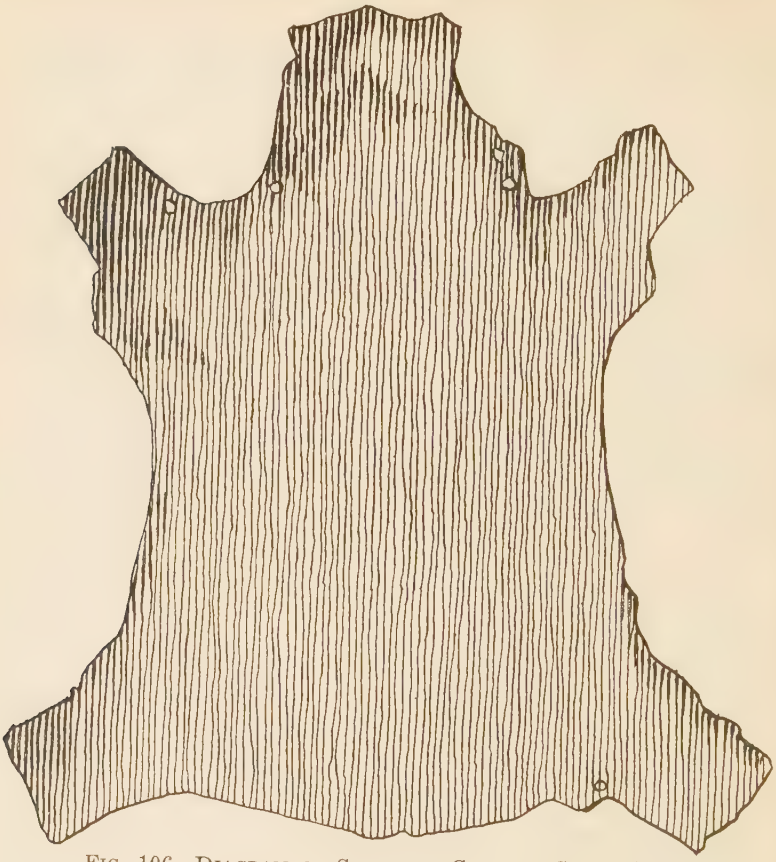


Fig. 106—Diagram of Shape of Goat or Sheep Skin

Moroccos (goatskins) and sheepskins (also skivers) are usually obtained in the full size skins; cowhide, because of its large size and difficulty of handling, is cut apart along the backbone line of the animal and each "hide" made into two "sides."

Leathers, because of their animal origin, are naturally irregular in shape and vary in size. When you buy leather you usually buy it in sides or hides and you must pay for the entire area of the skin, although considerable of the skin must be wasted in cutting out book covers or backs and corners.

Note the irregularity of the shape for you will later encounter difficulty in securing your leather pieces from the animal skin.

Leathers are not cut with scissors or ordinary knife.

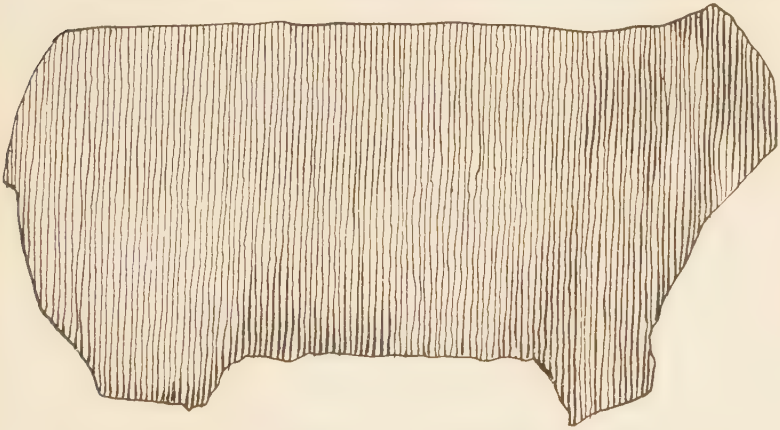


Fig. 107—Diagram of Shape of a Cowhide or Buffing "Side"

First you must have a flat, even surface upon which to lay the skin, finished side up, and a very sharp, thin bladed, pointed knife with which to cut the leather.

For cutting surface, real bookbinders use a Krieg block. This is a composite wood block, made up of small uniform pieces of clear white pine, cut about two inches square and three inches long, all set upon end, firmly glued together and encompassed by a metal band, the finished block saturated with a special oil. This block, about thirty inches square, kept properly oiled, provides an ideal cutting surface.

A sheet of heavy, smooth zinc, firmly fastened to a table top, will do equally well, when only occasional leather cutting is to be done.

A Krieg block should always be kept well oiled and in a cool, dry place.

The leather cutting knife is important. A Hyde knife handle and replaceable blades are best. A good steel knife, ground down to a thin, sharp edge and point, can be used. An oil stone for resharpening is necessary.

Goatskins are firm, pliable but very tough, and their surface does not scratch nor "scuff" easily; cowhide is similar but more fibrous; sheepskins are softer, very pliable, easily scratched and "scuffed."

Many leathers, not explained here, are used in bookbinding; lamb, seal, walrus, ostrich, even snake, lizard and alligator are used. You will encounter some of these as you advance in bookbinding.

PROJECT 16

Leather Cutting—Paring—Turning-in

Materials Needed: Leather scraps of fair size. Obtain a variety of qualities and skins if possible.
Pieces of board for patterns.

Tools Needed: Hyde knife.
Paring knife.
Krieg block or cutting surface.

It is essential that you obtain some experience in cutting and paring leathers, thereby learning by actual experience some of the difficulties encountered and the peculiarities of each type of leather.

1. Lay out six or eight various sizes of board patterns, using different shapes, both square and round corners, etc., and cut the *board stiffening* that would go under the leather.

To the Teacher—Select sizes and shapes that would represent desk blotter-pad corners, small memorandum book covers, a heart or oblong shaped needle case cover, etc.

2. Mark your board linings and cover patterns with duplicate numbers, i. e., board lining No. 1, cover pattern that corresponds No. 1 also, so you will not become confused when you put them together.
3. Lay out your leather pieces and cut carefully according to your *large* board patterns (the *smaller* boards are your *linings*).

To the Teacher—Demonstrate the necessity for economy and accurate cutting to patterns; also the selection of stock to avoid holes, poor grain, "flabby" stock, too thick or "horny" material, etc.

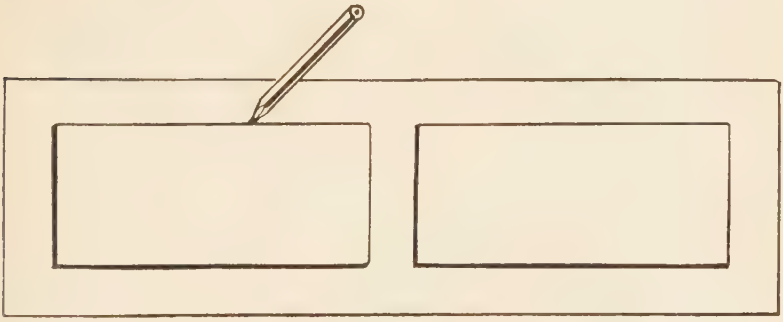


FIG. 108—POSITIONING BOARDS ON LEATHER COVERS

4. Following the teaching just obtained, position your board lining on each piece of leather (reverse sides) and mark with *colored* pencil around the edges of board. (Figs. 108–108-A.)
5. Next mark and cut off the corner pieces as you did in Lesson and Project 11, with this difference; where a triangular corner is to be turned-in *more* material must be cut away, on round corner work a different cutting must be made. See Lesson and Project 14 for method.
6. Paring or skiving down the edges of leather in order that the turn-ins may not cause thick, ungainly ridges on inside of covers or articles is one of the most difficult operations in binding. To do it accurately and evenly requires patience, skill and a *sharp* knife.

To the Teacher—Demonstrate proper method and technique of paring. Refer to Lesson and Project 17 frequently for this instruction. It will be well to coordinate the leather cutting in this project with that in Project 17.

Proceed to pare your leather pieces following the edges of the leather patterns carefully, just barely "edging" off the thickness at edges. At this time you will do what is known as "short" edging as different from wide paring for wide turn-ins.

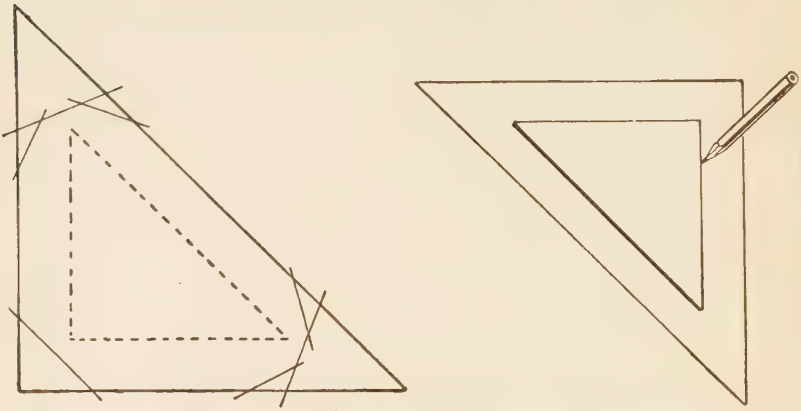


Fig. 108-A—Diagram of Corner Cutting and Positioning Odd Shaped Boards

7. Lay each leather piece, prepared for affixing to boards, with its proper board.
8. Taking each sample, one after the other, glue- or paste-off (it is advisable to try both glue and paste) the reverse side of the leather, lay on board, positioning it carefully, and turn-in the leather over board edges.
9. Carefully "nick-in" the turn-ins at corners on square corner boards and "draw-in," using your awl, the round corner pieces.

To the Teacher—Refer to Project 17 for instructions on round corner turn-ins and practice it in this project as well. The more practice obtained here on scrap materials, the better able the students will be to work Project 17 and other similar work by themselves.

Now that your have learned a little about leathers, we will put some of that knowledge to work and produce a few leather bound articles.

TEST QUESTIONS

1. What is leather?
2. Name four common varieties of bookbinding leathers and animals from which skins are secured.
3. What type of leather is most suitable for bookbinding?
4. Are leathers used in the natural state as removed from the animal?
5. What difference exists in character between the different types of leathers?
6. How are bookbinding leathers handled and measured?
7. Is waste an important factor in working leathers?
8. How should leathers be cut?
9. What are patterns?
10. Explain the proper cutting tools.

LESSON XVII

LEATHER CUTTING AND WORKING

To the Teacher—This project will be found the most difficult thus far attempted, and the students will require considerable individual instruction and assistance. It will be found desirable to allow each student to proceed only a step at a time, inspecting and checking their progress frequently. Before cutting leather and making corners a pattern pad should be made for the guidance of students and practice given in turning-in leathers by using scrap pieces. Artificial leather pieces may also be used to advantage.

PROJECT 17

Leather Cornered Desk Blotter Pad

Materials Needed: 1 Sheet binders board, No. 16 or No. 18 thickness, large enough to trim a sheet $19\frac{1}{4}''$ x $24\frac{1}{4}''$, grain $24\frac{1}{4}''$ way.

3 Yards, $1\frac{1}{2}''$ wide, black gummed muslin or book cloth.

2 Sheets green blotting paper, desk weight, $19''$ x $24''$.

2 Sheets dark green Herculean cover (or other cover paper), $20''$ x $26''$ size, antique, ripple, or linen finish.

1 Skin (sufficient for 5 students) black or dark green, small grain, morocco, morocco split, sheep or skiver.

1 Sheet (sufficient for 5 students) No. 70 or 80 chip or binders board.

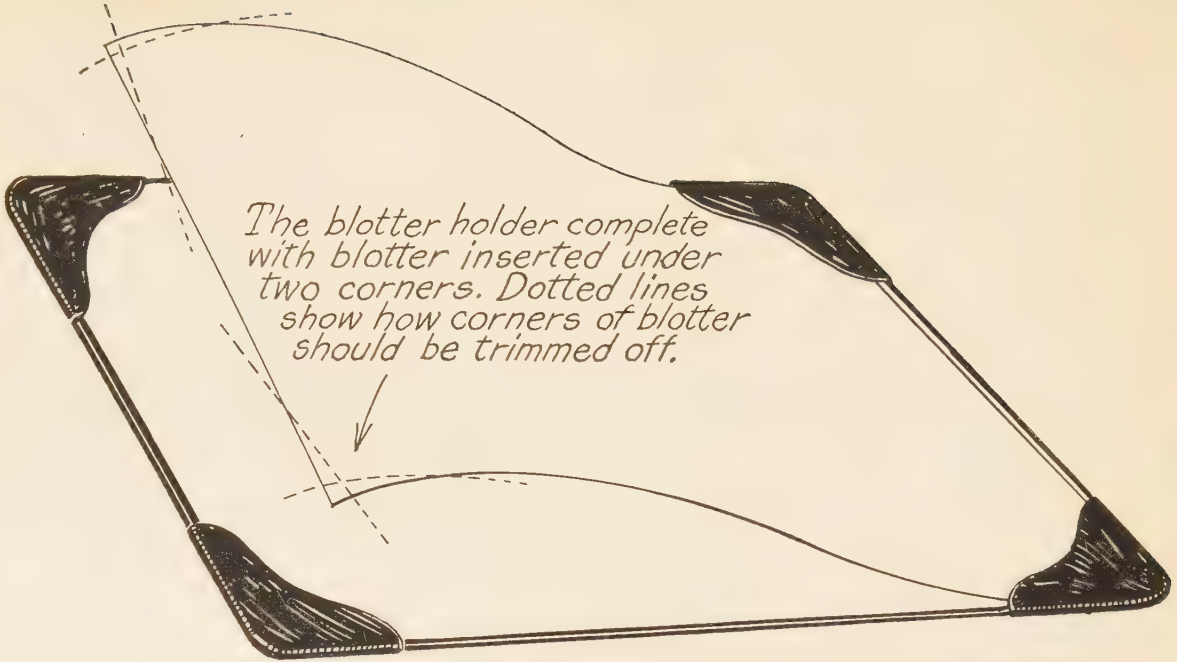

The blotter holder complete
with blotter inserted under
two corners. Dotted lines
show how corners of blotter
should be trimmed off.

FIG. 109—COMPLETED DESK PAD, WITH DIAGRAM SHOWING PROPER METHOD OF CUTTING BLOTTER SHEET CORNERS

Tools Needed: All regular tools, plus:
Leather cutting knife.
Round corner cutter or round nose chisel.
Sponge.
Paring knife.

We intend to make a desk-blotter pad or holder like Fig. 109.

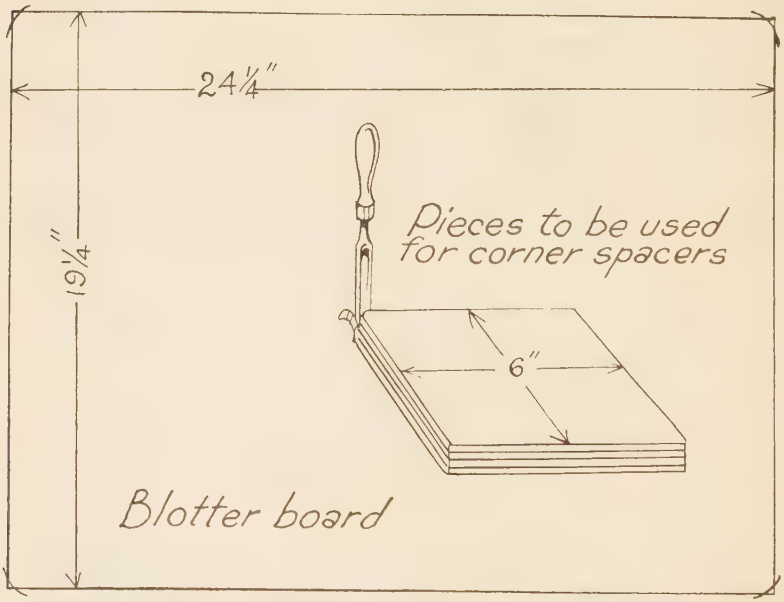


Fig. 110—Diagram of Blotter Base and Corner Spacers

The sheets of blotting paper are exactly 19″ x 24″ (such as you buy in any stationery store), so in order to make the pad accommodate these easily and allow for possible variation we will make our baseboard 19¼″ x 24¼″, which gives a ⅛″ leeway on all four sides.

First, we take the sheet of heavy No. 16 or No. 18 board, find one absolutely square edge, and lay off with our rule, straight edge and pencil the exact size 19¼″ x 24¼″, then cut it

on the board shears, or by hand with knife and straight edge, to size. (Fig. 110.)

Next, round the four corners, in the round corner cutter, or with a round nose chisel. (Fig. 110.)

Save the pieces you had left from the full sheet of board and cut 4 pieces 6″ x 6″; pile these one above the other and

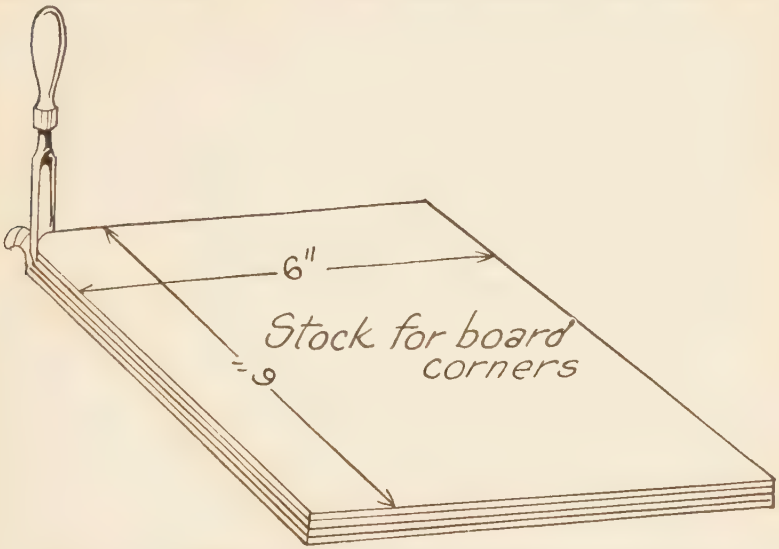


FIG. 111—DIAGRAM OF BOARDS FOR CORNERS AND METHOD OF CORNERING WITH CHISEL

round *one corner* of the four pieces exactly like the round corner on the large board. (Fig. 111.)

Now, cut 4 pieces of the No. 70 or 80 board, 6″ x 6″, and round one corner of each, same size round as others. After this, lay out the shape of your corner pieces on these four pieces of thin board like Fig. 112.

Next cut out carefully 4 pieces like Fig. 113.

Binding the edge of the large board is the next step. Using the $1\frac{1}{2}$″ black, gummed muslin, gummed book cloth or the like, "strip" the edges like Fig. 114.

It will be found best to cut this muslin into two lengths

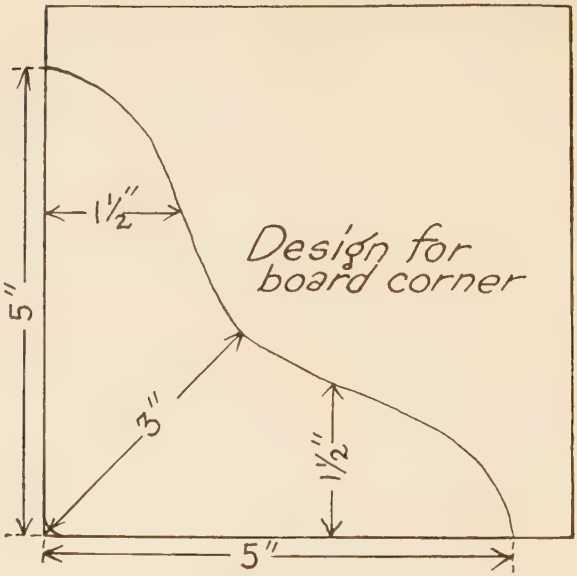


Fig. 112—Plan of Designing Board Corners

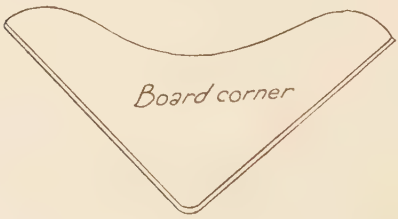


Fig. 113—Finished Corner Boards

$16\frac{1}{4}''$ long and two lengths $11\frac{1}{4}''$ long; moisten each strip, one at a time with the wet sponge and apply separately.

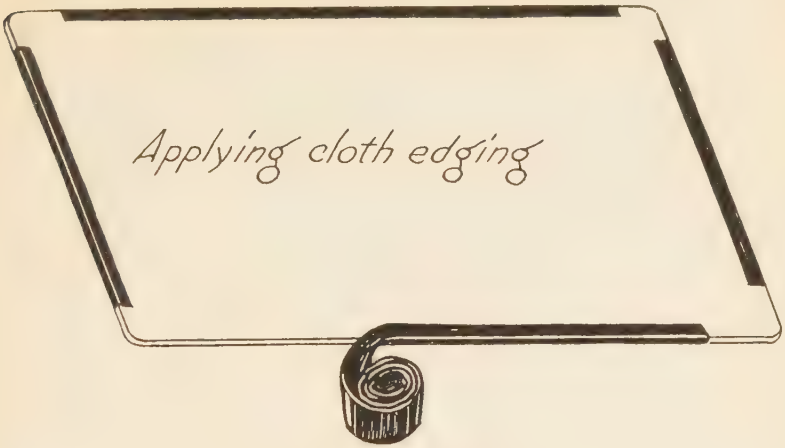


Fig. 114—Edge Binding

Your board now looks like Fig. 115.

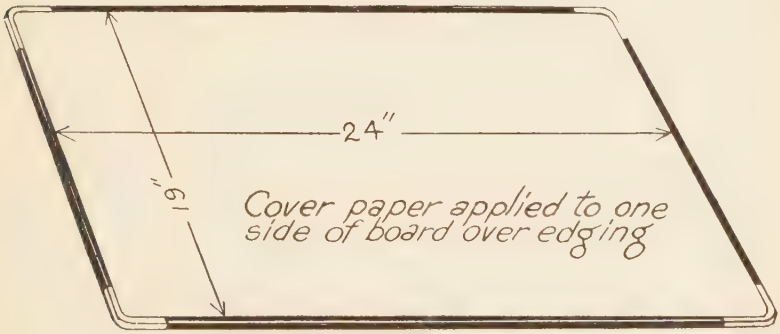


Fig. 115—Base Board with Four Edges Bound with Cloth or Muslin and Sheet of Cover Paper Glued to Upper Side

Take one sheet of cover paper, cut it exactly 19" x 24", round the four corners to match large board, glue-off the *wrong* side of the paper, and mount it to one side of the large board, positioned *exactly* $\frac{1}{8}''$ from each of four edges, glued *on top* of the muslin strips on that side of board.

Our next step is to cut the leather corners, but before that we must make a fairly heavy board pattern with which to "cut-out" the leather corners. Take one of the board corners already cut. (Fig. 113.)

Lay it on a piece of strong paper and mark out a pattern $\frac{3}{4}$" larger all around than the board for the corner. This is the leather corner pattern. Cut a board pattern exactly like this (a piece of board no thinner than No. 25 is best).

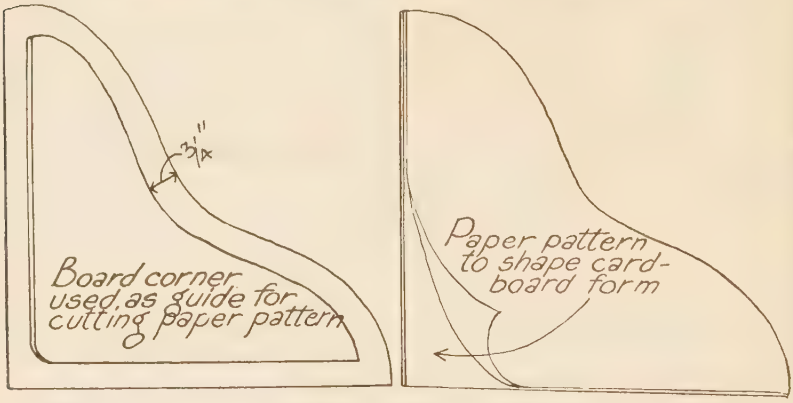


Fig. 116—Diagrams Showing Method of Obtaining Corner Material Size and Shape; Also Preparing Leather Cutting Pattern

Select the skin of leather you are to use, lay it face up on your table or cutting block, with the "butt" (or tail end) of skin toward you (Fig. 117). Place your pattern on the skin and carefully cut around your pattern. Use the *point* of your knife and keep the *flat side* of blade *snugly* against the edge of board pattern *all* the time. (Fig. 118.)

In cutting leather the most important endeavor is to avoid waste.

Place your pattern carefully and fit each cut as closely to the next as possible. Cut down into the "flanks" and "legs" of the skin as far as the even grain and good quality of stock will permit.

All leather scrap should be saved and stored FLAT.

FIG. 117—PROPER METHOD OF CUTTING LEATHER TO PATTERN

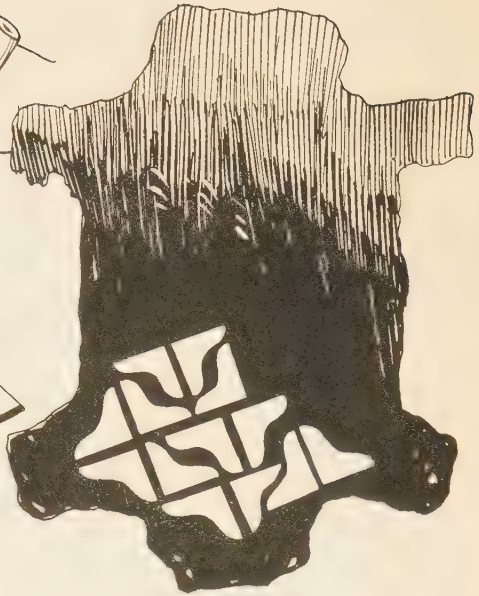


FIG. 118—PLACING PATTERN ON SKIN TO AVOID WASTE

Next lay each leather corner flat on a smooth metal or lithograph stone surface, *back* of leather *up*, and carefully "edge-off" or "pare" the outer edges of each piece. (Figs. 119–121, inclusive.)

Fig. 119—Litho Stone, Leather Laid Flat, Reverse Side Up

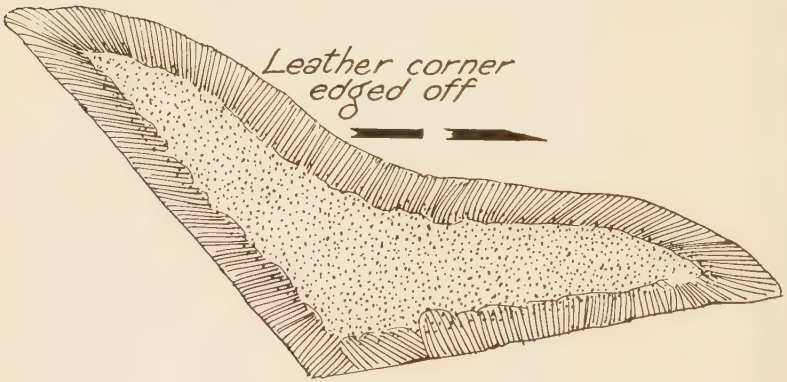


Fig. 120—Leather Edged Off

Take your four pieces of No. 70 or 80 board which you cut carefully into the shape of corner desired, 5″ long on each two square edges, lay them on the *reverse* side of your leather corners (which are now ready) and prepare the leather for "turning-in" over the corner patterns. (Fig. 122.)

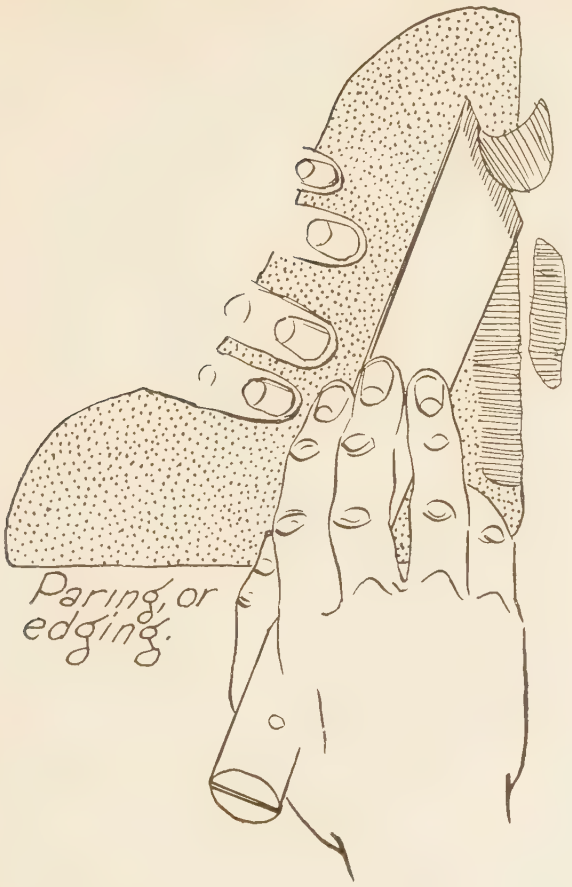


Fig. 121—Method of "Paring" or Edging

Mark out the *shaded spaces* on this diagram on each piece of leather, and at the same time the *exact shape* of the *board*. In order to turn-in the leather *neatly* over the edge of the board it will be necessary to *cut-out* these spaces that the *surplus* leather at *corners* and on curved edges *may not be "bunchy."*

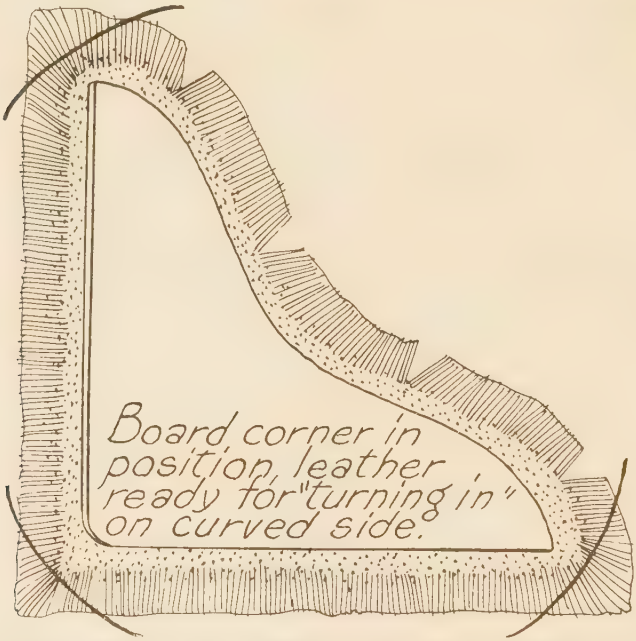


Fig. 122—Diagram of Blotter Pad Corner Showing Proper Corner Cutting and V-shaped Cuts to Permit irregular Turn-ins

Important—The incisions made *must not* come *closer* to the *board* than *three times* the *thickness* of the *board*. Failure to observe this rule will result in inability to make leather *cover* the board edges when turned in.

Next, glue off one side of each corner board carefully, remembering all you have learned about the use of glue, place each board carefully in position on the *reverse* side of each leather corner and *press* until *thoroughly dry*.

We must now turn-in the *irregular* edge of each corner board leaving the two straight edges open. Lay out each corner, one after the other, on table, with piece of paper underneath, *irregular* edge *toward you*. With a small paste brush carefully "paste-off" the irregular leather "turn-in" and that edge of board. (Fig. 123.)

Now, using your bone folder and awl turn in the irregular edge. It will be necessary to use the awl in "pulling-in" the leather around the curves.

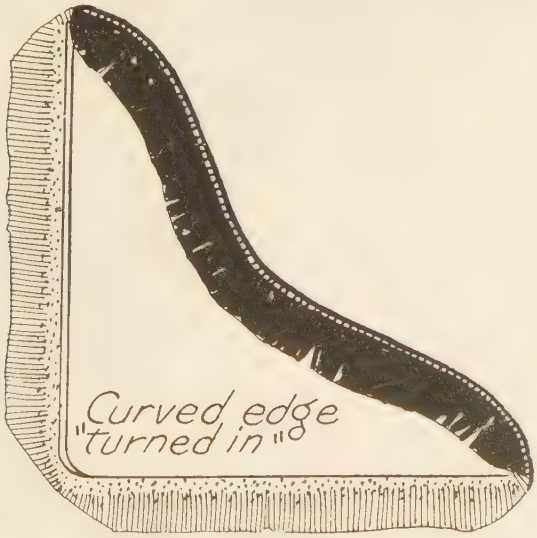


Fig. 123—"Inside" of Corner with Irregular Edge Turned in

Your corners are now ready to affix to large board. They appear, looking at both sides, like Figs. 123–124.

We are ready to affix the 4 corners to the main blotter board. For this we require the 4 pieces of board 6″ x 6″ with one corner rounded, the four corners just (partially) completed, and the larger blotter board already edged with cloth and mounted on one surface side.

Proceed in this manner:

1. Lay out the four leather corners, finished side down, on a large sheet of paper on a flat table surface. (Fig. 125.)

2. Above each corner, lay one of the 6″ x 6″ pieces, with its rounded corner just over the rounded corner of the four individual corner boards. (Fig. 126.)

Fig. 124—Face of Corner with Irregular Edge Turned in

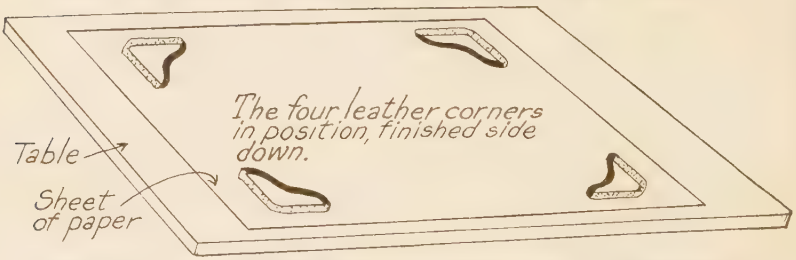


Fig. 125—Laying Out Corners Preparatory to Positioning Board Above them for Affixing Corners

3. Next, lay the large blotter board *lined-out side down* on top of these four board pieces. Move each pair of corners and boards until each are exactly under the other. (Fig. 126.)

4. When these are exactly in position, place a brick weight on each corner to hold firmly (Fig. 127). *Paste-off* the turn-ins of each

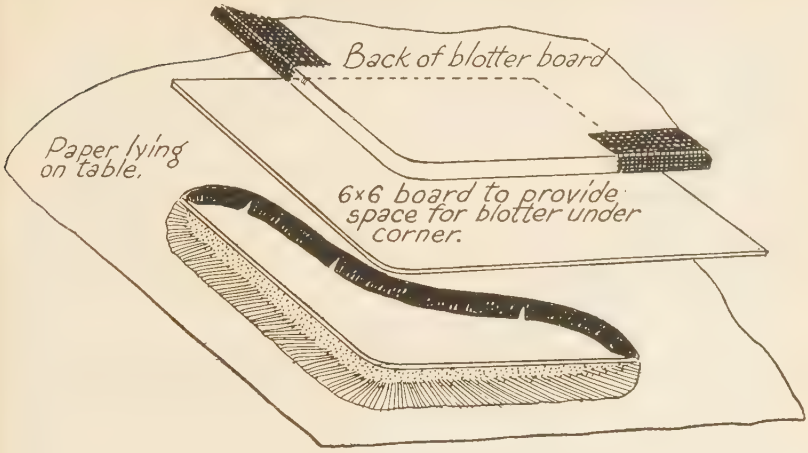


FIG. 126—PLACING THE CORNERS, SPACE BOARDS AND BASEBOARD IN POSITION TO AFFIX CORNERS

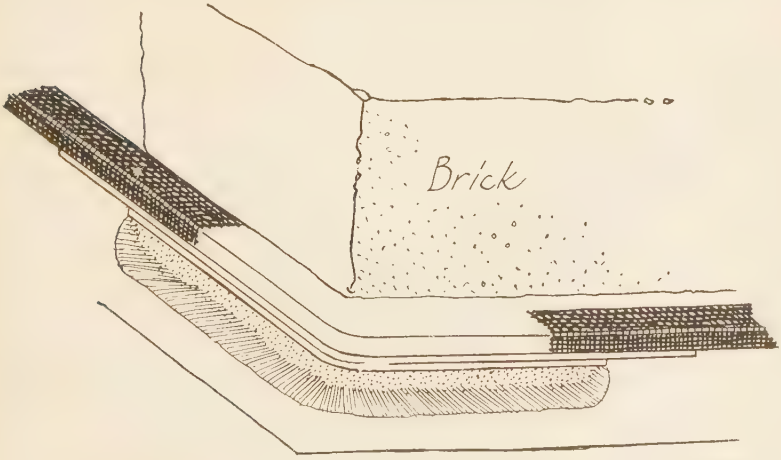


FIG. 127—CORNER IN POSITION, READY TO ATTACH TO BASEBOARD

corner board and carefully bring the leather edges *up, over, onto* the *side* of the large blotter board. (Figs. 127–129.)

5. Allow corners to dry thoroughly under pressure.
6. Using the remaining sheet of cover paper cut this exactly 19″ x 24″ and mount solidly *with glue* to the uncovered side of the blotter board *over* the leather turn-ins and cloth edging. (Fig. 130.)

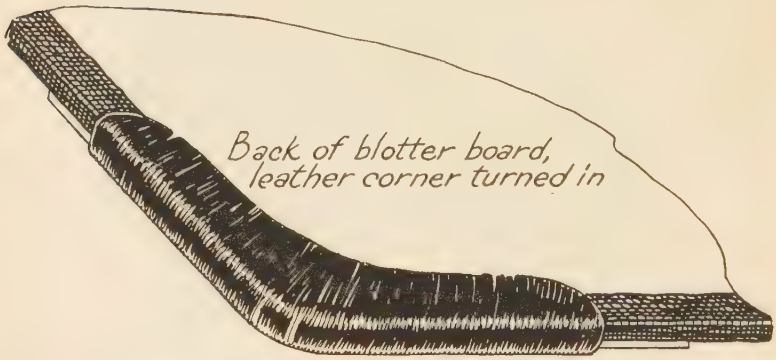


Fig. 128—Under Side of Blotter Baseboard with Corner Affixed

7. Carefully remove the 4 pieces of board 6″ x 6″ from under the corners and you are ready to insert the sheets of blotting paper. (Fig. 129.)

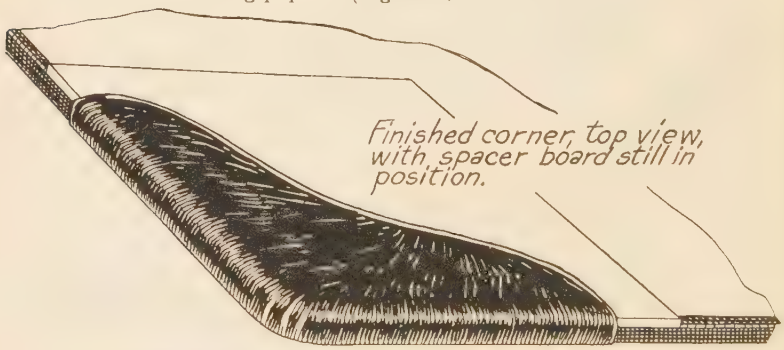


Fig. 129 Face Side of Blotter Baseboard with Corner Affixed

8. If you care to crease the corners do this before removing the fitting boards.

9. In fitting the sheets of blotting paper it is well to cut the four corners, like Fig. 109.
10. Carefully clean off any paste or glue and your blotter pad is finished.

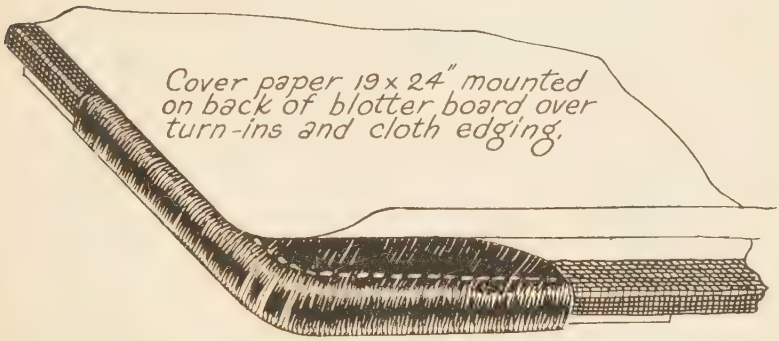


FIG. 130—UNDER SIDE OF BLOTTER BASEBOARD SHOWING METHOD OF AFFIXING LINING PAPER TO BOARD OVER CORNER TURN-INS

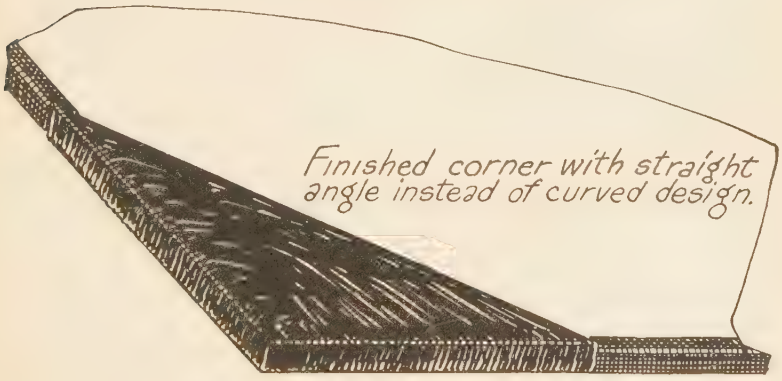


FIG. 131—STRAIGHT ANGLE CORNER

To the Teacher—It will be found that this project taxes the skill and application of the student. A very considerable

amount of personal instruction will be required, particularly on making and affixing corners. If desired the project may be simplified by using a straight angle corner instead of curved design. (Fig. 131.)

TEST QUESTIONS

1. What difficulty did you encounter in cutting leather corners?
2. Did paste or glue work best in affixing corners? Why?
3. How did you mount lining sheets?
4. What peculiarity does gummed cloth or muslin exhibit in working?
5. Are irregular edge or straight-edge turn-ins on leather work easiest? Explain why.

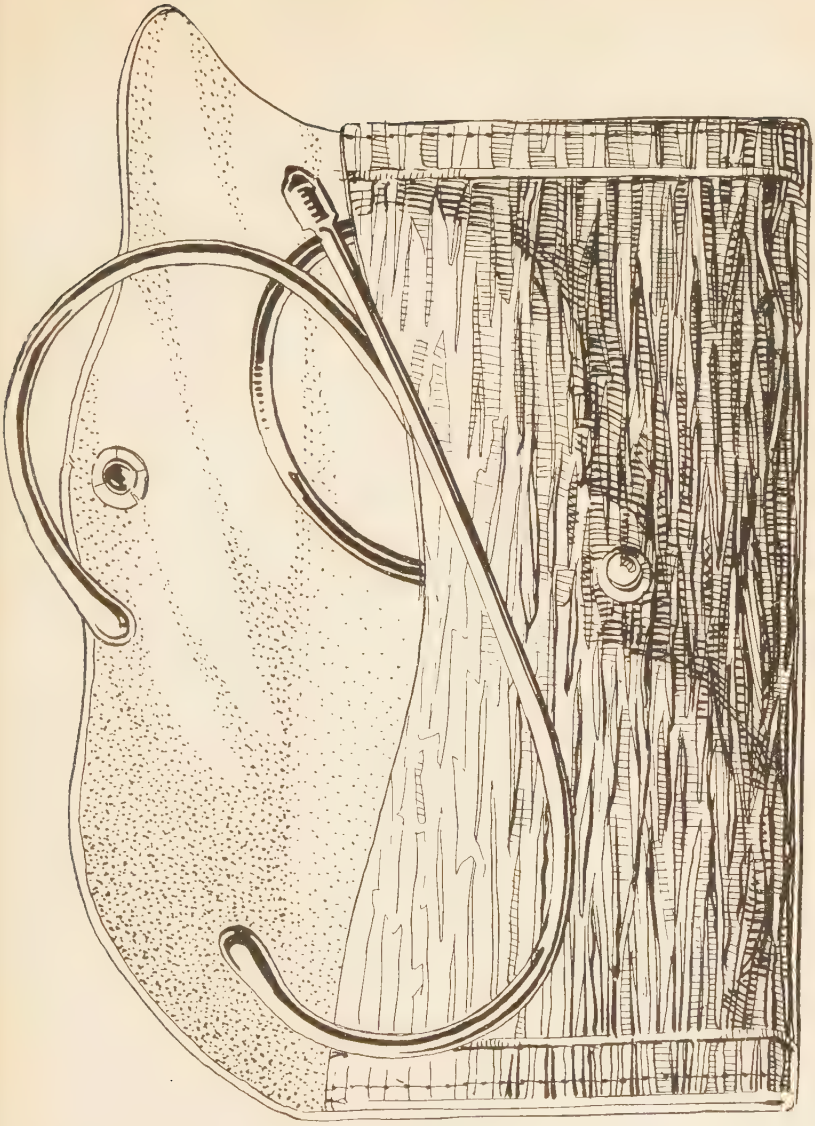


FIG. 132—FINISHED SPECTACLE CASE—OPEN

LESSON XVIII

LEATHER CUTTING AND WORKING

To the Student—Your last project has given you brief experience in handling, cutting and working leather. To obtain further experience we will undertake a more simple project which combines cutting and handling leather with the added operations involved in the use of snap fasteners and hand or machine stitching of edges.

PROJECT 18

Leather Spectacle Case

Materials Needed: 1 Piece (or skin of leather) sufficient from which to cut a piece $7\frac{1}{2}''$ x $9''$ (morocco is preferable although cowhide or good weight sheepskin will do), pin-seal, crepe, or paste-grain leathers are best suited for this project.
1 Fast-black-top snap fastener (or two if a double snap style is used.)
1 Yard black sewing thread.
1 Bottle black leather dye or color (for coloring edges of leather after cutting).

Tools Needed: All regular tools and snap fastener punch and set; leather cutting block or table and knife; piece of board for pattern; creasing iron and heater.

We are to make a glasses case to hold the popular type of tortoise-shell or celluloid frame spectacles. Our finished project should look like Fig. 132.

The first step in planning any leather project or specialty is to make a pattern.

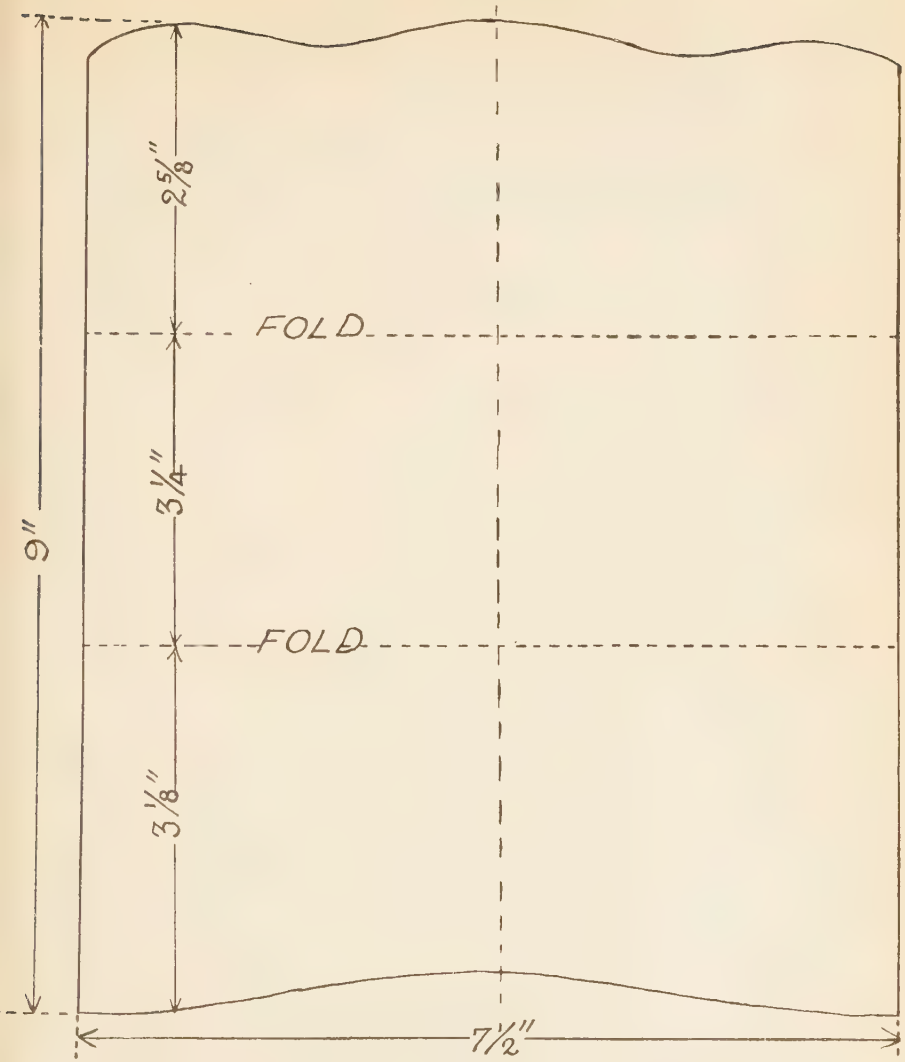


FIG. 133—DIAGRAM FOR CUTTING PATTERN WITH DIMENSIONS AND FOLDS INDICATED

Taking the piece or sheet of thin board provided, and using straight edge, T-square and dividers, lay out your pattern like this diagram. (Fig. 133.)

When you have completed the layout plan, carefully cut your pattern *exactly*. Be sure to use board stiff enough to lie flat as a leather cutting pattern.

Next select your piece of leather. If it has a long (or

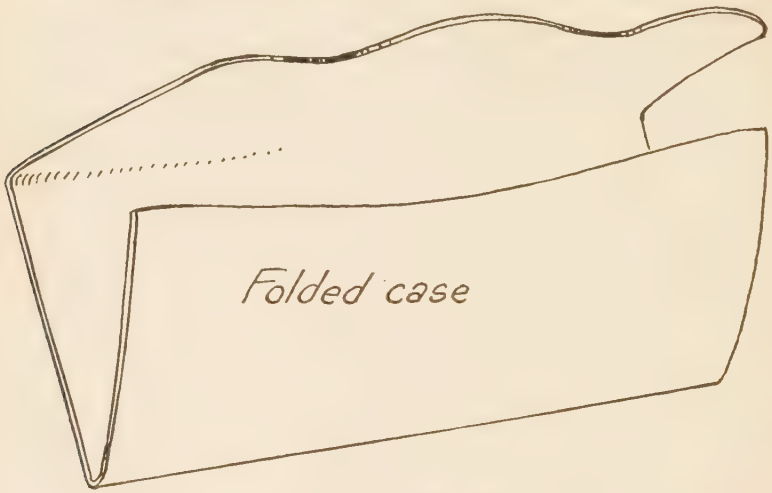


Fig. 134—Folded Case

crepe grain) plan to cut it with the grain pattern *across* the $7\frac{1}{2}''$ width.

Lay your pattern carefully on the leather and cut out piece of leather to required shape and size. It is well to select firm, but not stiff, leather, easily folded and pliable to the hands.

Following the measurements on your diagram and using your bone folder carefully fold and firmly set the two folds needed. (Fig. 134.)

Now fold back the top flap, lay your case flat on bench or table, one end projecting over edge of table, mark off $\frac{1}{16}''$ (Fig. 135) spaces on the pocket section at either end. Using your awl carefully pierce *very small* holes through the

front section only, permitting the point of the awl to just barely enter the back section, $\frac{1}{2}$" distance from edge. (Fig. 135.)

Thread two sharp sewing needles with strong leather work thread, wax the thread, and hand stitch both edges.

After starting in hole nearest fold, pass two threads in opposite directions through each pierced hole, drawing thread tight at each stitch. (Fig. 136.)

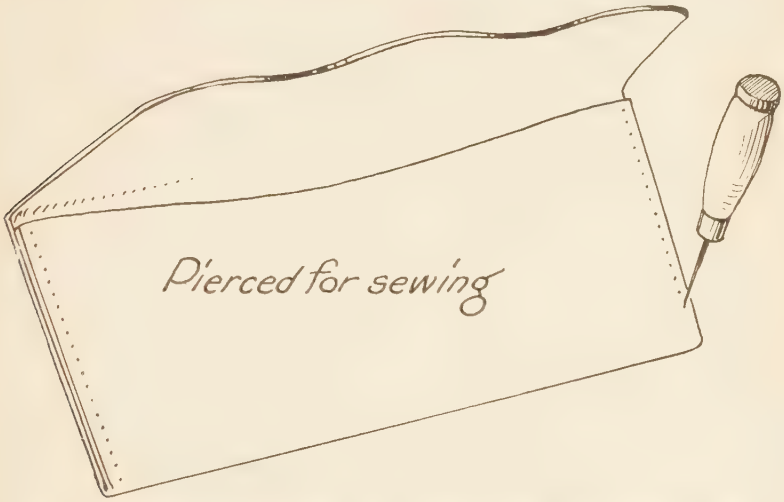


Fig. 135 -Mark off Spaces and Pierce Each Gently with Awl

When you arrive at the edge of the flap-pocket tie your thread-ends in a hard knot. (Fig. 137.)

Lay the case flat on bench and with flat edge of bone folder rub the sewed surfaces briskly to flatten thread stitches and leather on both sides. (Fig. 138.)

Now you are ready to affix fasteners. First fold cover flap over carefully, crease the fold flat, and mark on flap *exact* position of button—mark the position with your awl, gently piercing flap and leaving mark on pocket. (Fig. 139.)

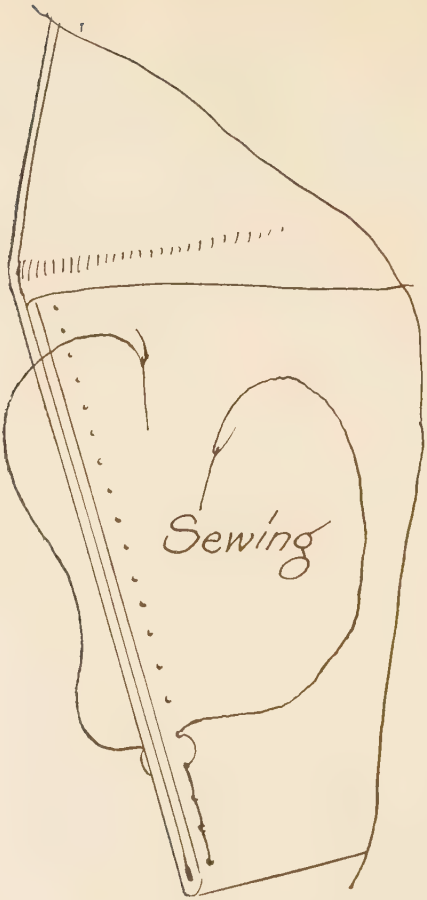


Fig. 136—Method of Hand Stitching

Fig. 137—Tie Knot at Finish

Fig. 138—Smooth Down Stitching with Bone Folder

Fig. 139—Mark Position of Snap Button

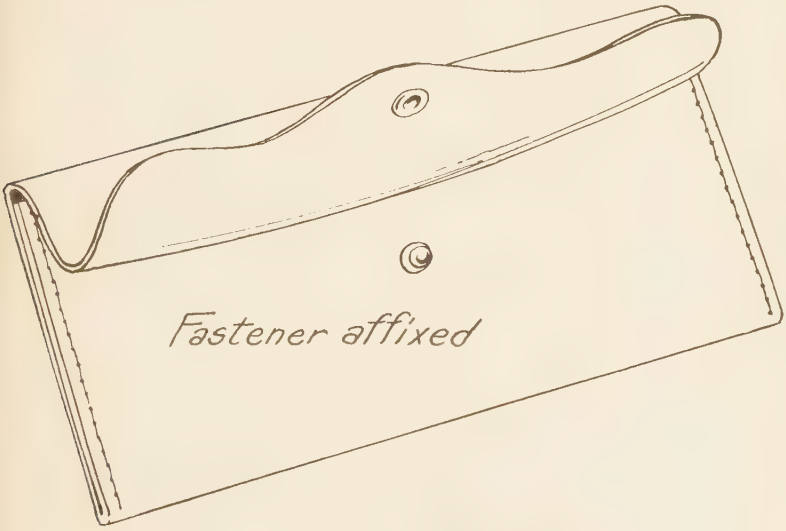


Fig. 140—Snap and Fastener Affixed

Before attempting to affix button and snap, consult your instructor and observe demonstration of method of operating fastener machine and learn peculiarities of different materials while affixing fasteners.

Assuming you have learned proper method, affix fasteners.

To complete spectacle case you must dye the cut edges of leather jet black to present finished appearance. Use the

Fig. 141—Creasing Single Lines on Case

dye provided and a swab made by wrapping a bit of cotton-batting, or absorbent cotton, around a tooth pick, match or the blade of your awl. Apply the dye by rubbing gently along the edge. (Fig. 142.)

Now comes the creasing. Here, again, you will require instruction. Select a single line creasing-iron. Heat it over electric plate or gas burner until, like testing a laundry iron, it

"sizzles" when the wet tip of your finger is touched to it. It *must not* be hot enough to scorch the material nor cool enough to require great pressure.

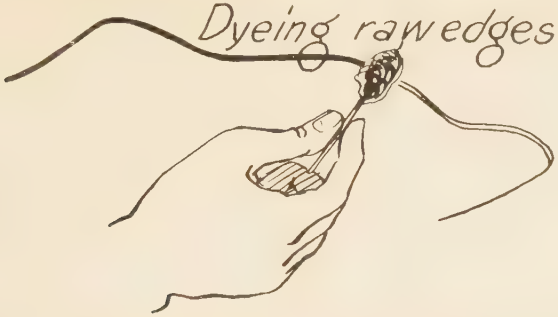


FIG. 142—APPLY COLOR TO CUT EDGES OF LEATHER WITH SWAB

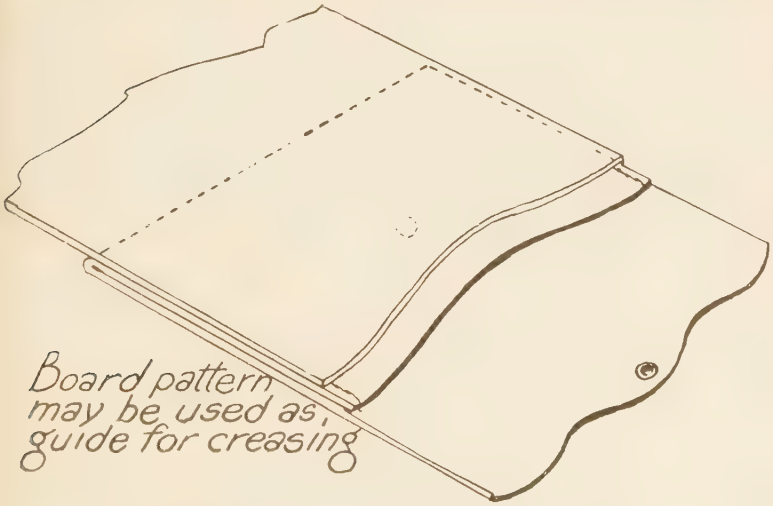


FIG. 143—DIAGRAM SHOWING HOW BOARD PATTERN MAY BE LAID ON OVER CASE TO USE AS A GUIDE FOR CREASER

Hold the case flat on table or bench with left hand, turning it as needed. Hold the creasing iron firmly in the right

hand, handle resting snugly against your right shoulder. Proceed slowly, but with dispatch. You should be able to crease entire case before iron cools. (Fig. 141.)

It may be found necessary to use your board pattern as a guide against which to run the edge of the creasing iron to insure accuracy. (Fig. 143.)

The finished case, provided you have followed instructions carefully and worked neatly, will be quite similar to the pattern shown at the beginning of the project and below.

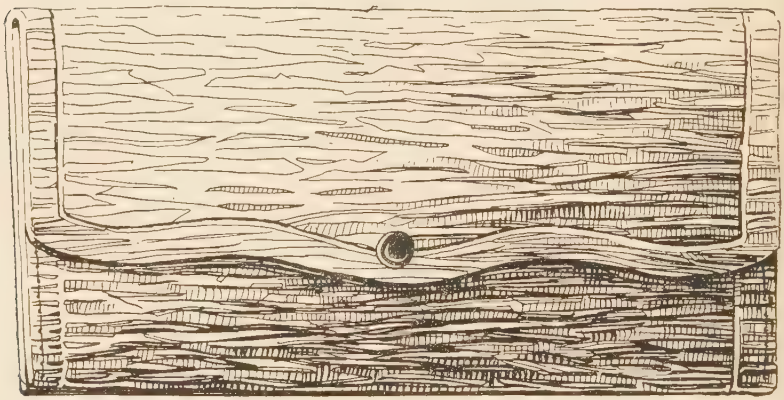


Fig. 144—Finished Case—Closed

TEST QUESTIONS

1. What is quite necessary in leather novelty work?
2. Why do we color cut, not turned-in edges of leather?
3. Explain the process of affixing fasteners.
4. What difficulty did you find in creasing?
5. What type of stitch did you employ?

LESSON XIX

BOOK CONSTRUCTION

To the Teacher—Have each student bring to classroom from his home a sewed, cloth-covered book that is in good condition, with the exception that it needs resewing and may be recased in same cover. Also require that they bring in a copy of some magazine about 6″ x 9″ in size that is *side-wire* stitched, not *perfect bound* (i. e., having the leaves held together only by glue and crash).

PROJECT 19

Preparing Books for Rebinding

Materials Needed: A book that needs rebinding.
A current magazine side wire stitched.
1 Sheet white end paper stock equal to 25″ x 38″ —80 pound basis.
Scraps of crash, back lining paper, a small quantity of hand sewing thread, hand twine, glue and paste.

Tools Needed: Bone folder.
Nippers.
Sewing needle.
Sawing out saw and bench press.
Heavy hammer.

To the Student · You have now progressed through the elementary steps of preparing and working papers for the interior of booklets and for covers, but as yet you have not actually bound a book. To first familiarize yourself with the make-up of books and magazines and to give you preliminary

experience in preparing an actual book for cover and casing it in (i. e., affixing book in cover), we have chosen a project that first requires the taking apart of a book and magazine that we may see how they are put together. We will afterward "rebuild" them into actual books.

Fig. 145—"Peeling" Front Cover of Magazine from Book

1. Take the magazine you have provided and carefully remove the cover. To do this lay magazine *flat* on table, *open edge* toward your left hand, lift cover leaf with *right hand*, holding book on table with left hand, and gently "peel" cover off book. (Fig. 145.)
2. Reverse the book and remove back cover in a similar manner.
3. Find the wire staples that hold book together. After finding staples lay book flat on table with the "clinched" side of staples uppermost. (Fig 148.)
4. Using your nippers clip off the wires close to where they disappear into book. To do this first straighten wires to vertical position, then clip off. (Figs. 149–150.)
5. Turn book over and, holding firmly with left hand, gently but firmly grip each wire with nippers and by working back

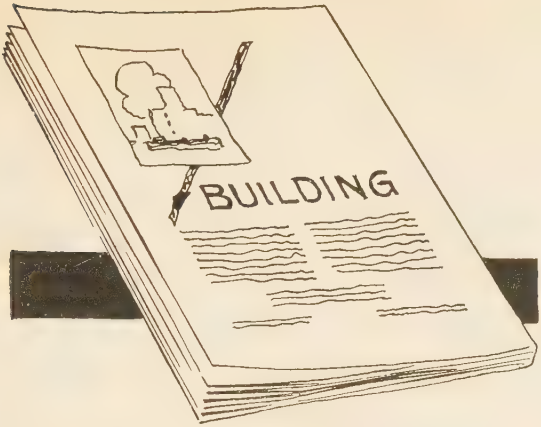


Fig. 146—Magazine Laid on Its Face Ready to Remove Back Cover

Fig. 147—Removing Back Cover of Magazine

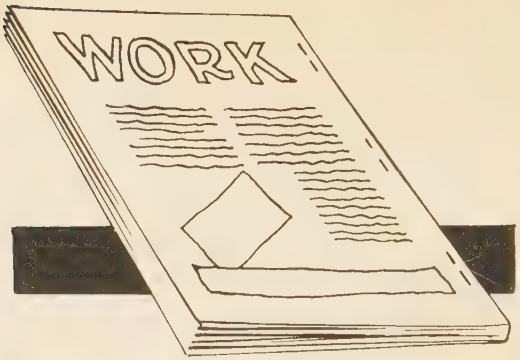


Fig. 148—Clinched Side of Wires Binding Magazine

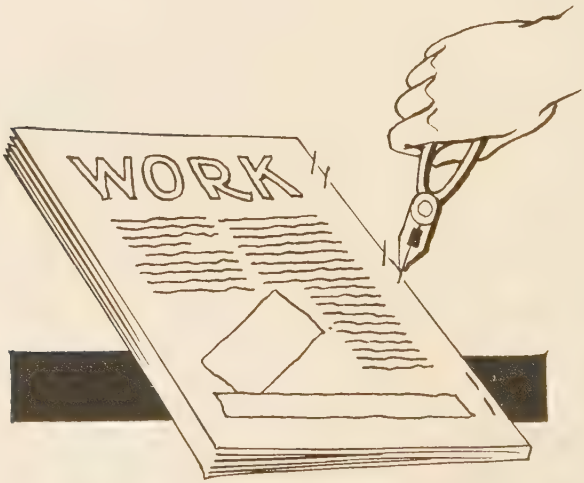


Fig. 149—Grasp Each Wire with Nippers and Bend Backward to Straighten

and forth gradually pull staples out of book. (Fig. 151.)

6. Your book being free from wires it can now be separated into

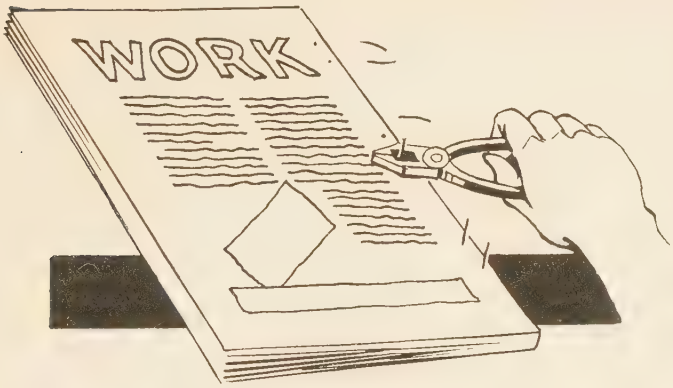


FIG. 150—CLIP OFF CLOSE TO BOOK

FIG. 151—SOLID SIDE OF STAPLES

sections or signatures. Find the "break" between sections and remove one section at a time by "peeling" it away from book. (Fig. 152.)

Fig. 152—Separating Book into Sections by "Peeling" Each Section Away One at a Time. It will be Necessary to Work Sections Away from Book as You Separate

To the Student—You must proceed carefully or you will cause serious tears in sections. If book is solidly glued along back it may be necessary to apply a thick coating of paste to the back to soften the glue. Allow paste to soak in, then scrape the paste and glue off with dull edge of your binders knife before attempting to separate sections.

7. After sections are all separated, clean the back folds or binding edge of surplus glue particles, paper from the cover, etc., by careful scraping.
8. Place your sections in orderly sequence and jog up carefully for front and top edges.

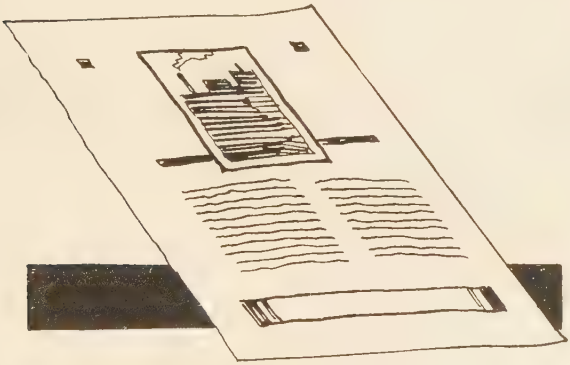


FIG. 153—SAVE THE COVER LEAVES YOU REMOVE

In taking apart magazines or books the sections must be separated gradually and carefully, always "peeling" a section from the remainder of the book, by pulling gently but firmly in parallel direction to the binding edge.

Now lay aside these sections, placing under a weight.

Next take the book you have provided and consider how you will remove the cover without damaging the book. The book is held in the cover by the "end paper," a sheet extending from the book onto the inside of the cover both front and back; under this paper is a "crash" (coarse netting)

that strengthens the paper across the "joint" or "hinge" where the cover opens.

Proceed in this manner.

Fig. 154—Cutting Cover from Book

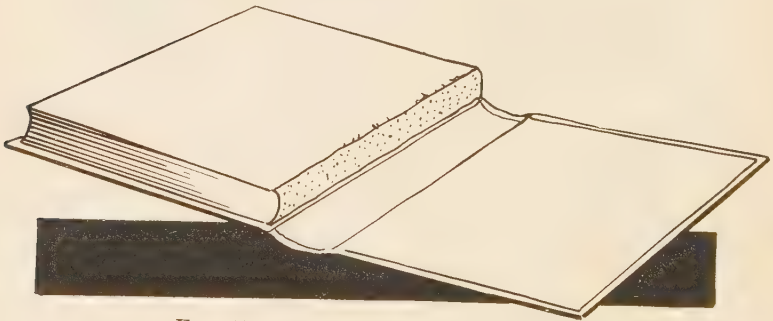


Fig. 155—Cover Cut Away at Joint

1. Lay book flat on table; open one cover and, holding book down with left hand, carefully cut through lining paper and crash at joint *close to book*. (Fig. 154.)
2. Keep the cover away from the book as you cut it loose or

your knife will cut the cover as well and that you should avoid. When the cut is finished, your book and cover will look like Figs. 155 and 156.

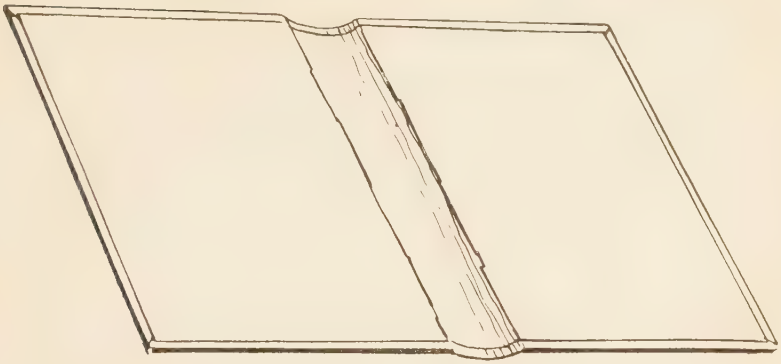


FIG. 156—COVER AFTER REMOVAL FROM BOOK

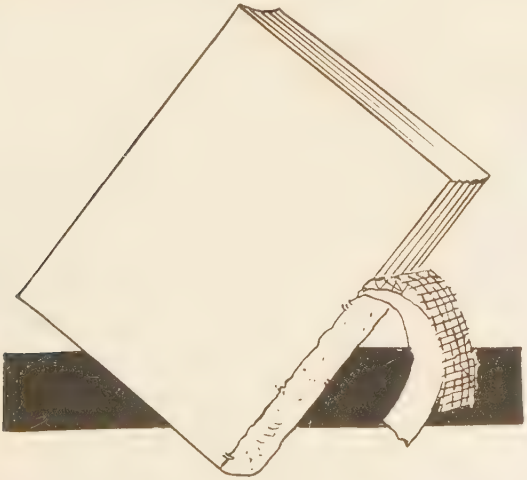


FIG. 157—"PEELING" OLD CRASH AND LINING PAPER FROM BACK OF BOOK

3. Fold this cut-loose cover back into position on book, turn book over on table and repeat process with other side.

When you have finished, your book and cover will be separated completely. Lay cover carefully aside and proceed.

4. Remove the crash and paper from backbone of book by "peeling" it *away* from back carefully. Thoroughly wetting the back with a sponge saturated with water will help to loosen paper, crash and glue. (Fig. 157.)

Use your knife with which to grasp and pull away the material. *Work carefully.*

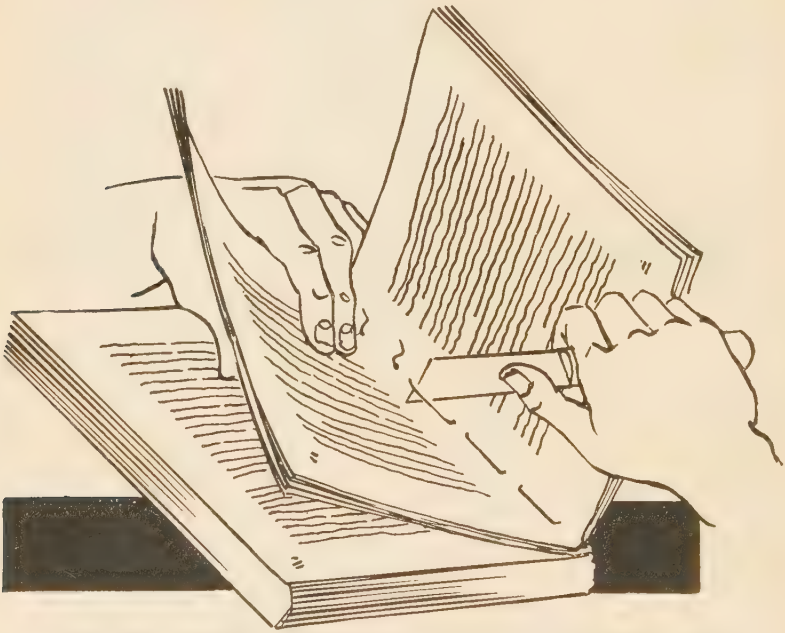


Fig. 158—Cutting Thread in Loops, Center of Sections

5. Next remove the single white end sheet still adhering to book by "peeling" it away from front and back sections, as you did the magazine cover. Do not tear the book sections.

6. Now open the book to the *center* of the first section and find the sewing threads. Carefully cut each pair of threads between stitches. To do this slip the point of your knife under the thread loops. and cut. (Fig. 158.)

7. Find the end of the first section and the beginning of the second. Hold the entire first section in the right hand, the book to the table top with the left; work the first section gradually away from the book, gently "peeling" loose if any glue remaining still holds. (Fig. 159.)

Fig. 159—Separating Book into Original Sections

Taking apart a sewed book requires more skill than with magazines, due to sewing thread and reinforcing of back and cover.

8. Proceed in similar manner with each section until entire book is apart. Remove all threads, clean and gently scrape the backs of sections; place in orderly sequence under weight.

To the Student—Always clean up after your project is finished. Clean table, tools and waste materials around table.

You are now ready to undertake "sawing-out" and preparing for "hand sewing" to be accomplished in the next lesson.

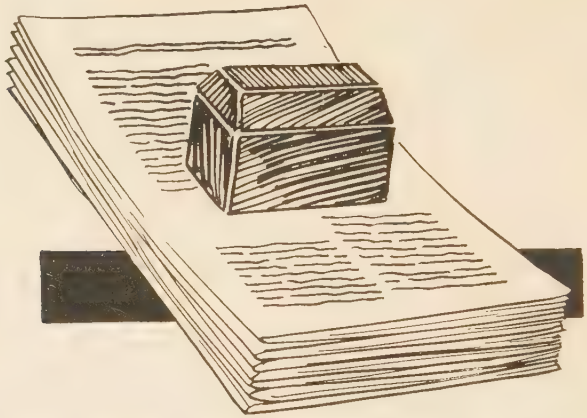


Fig. 160—Complete Book in Sections Ready for Rebinding

TEST QUESTIONS

1. How is a magazine bound?
2. Explain method of "breaking down" a magazine.
3. Name three difficulties encountered in taking apart a sewed, cased book.
4. What holds a book together?
5. What is crash and of what use in reinforcing book and holding on the cover?

LESSON XX

HAND SEWING—PREPARING

To the Student—You prepared two books in the previous lesson (Lesson XIX) for rebinding. Rebinding is but little different from binding new sheets or sections hence we employ used printed sections as a means of teaching you book construction and to give you practice in *actually* binding a book.

You took apart a completely bound book and a magazine, noting that each was composed of sections or signatures and held (or bound) together by means of either thread stitches or wire staples.

The sewed method is employed on nearly all book productions, especially those of the better class, and includes the bulk of all books bound.

Magazines and other periodicals are, of necessity, manufactured in the least expensive methods as they are not intended for permanency.

Wire stitched books or pamphlets are inexpensive but not durable.

Many school books are bound by stitching with thread, not by sewing with thread, and the stitching passes *through* the book sections in the same manner as wire staples through a "side-wired" magazine or pamphlet. "Side-stitched" books form a definite branch of book manufacture and you will encounter them in later lessons under "Edition Bookbinding."

Practically all editions of books today are sewn by machines. If this were not possible the cost of popular priced books would be much higher. It is well to get experience in hand sewing as a basis for understanding all sewing methods and especially because in rebinding it is an essential art, although special machines have very nearly made hand sewing a "lost art."

Hand Gathering—Assembling the Book Sections in Orderly Sequence

Collating—The Operation of Carefully Checking the Sequence of Sections and Completeness of a Book

We will, therefore, build these two lots of signatures into book form by first hand sewing them together.

PROJECT 20

Sawing-out—Hand Sewing—Preparing

Materials Needed: Signatures from Lesson and Project 19.
Ball of binders cord.
Paste.
Ball of wax.
White paper for end leaves.
Pieces of pulp board.

Tools Needed: Needle.
Backing saw.
Finishers bench clamp or job backer.
Awl.
Rule and pencil
Sewing frame.
Small hammer.

Your first step is to determine that your books are complete, that is, all sections are available *and in proper sequence,* thus you must first *collate* your books.

Collating is the operation of verifying the accuracy and sequence of all sections in a book before sewing.

By referring to the page numbers (or *folios*) on the first and last page of each section and checking them with the last folio of the preceding section and the first folio of the succeeding section this may be accomplished. As you complete your collating, *jog* each book carefully on the *back* or binding edge and to the *top* or head of book and lay flat on table with weight on top of each.

The Sewing Frame—In order to do hand sewing comfortably and rapidly we will use a hand sewing "frame" such as has been employed for generations in binderies.

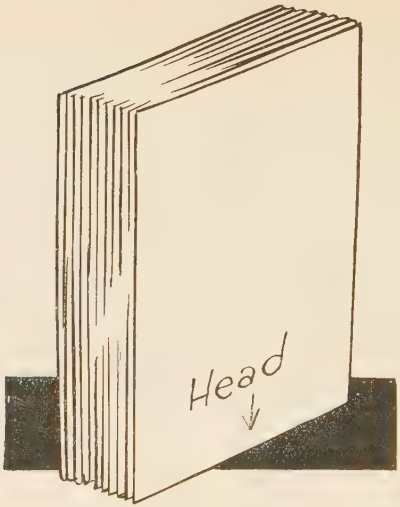


Fig. 161—Jogging to the Head

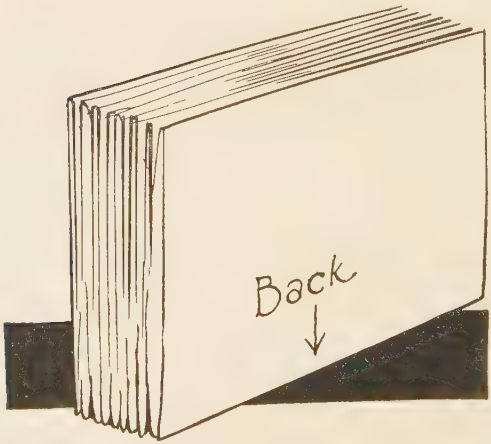


Fig. 162—Jogging to Back or Binding Edge

The frame consists of a base, two upright spindles threaded a considerable distance down from the top, on which threads are operated two wooden nuts (supporting crossbar), and a crossbar which holds the upper end of cords or bands upon which the book is to be sewn. The baseboard also has a slot through which the lower end of cords or bands pass to be fastened underneath baseboard.

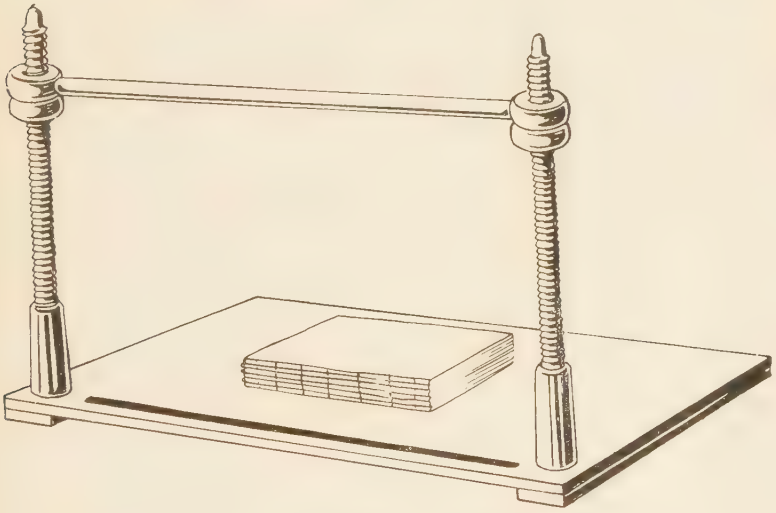


Fig. 163—The Hand Sewing Frame

To the Teacher –Considerable time should be devoted to demonstrating setting-up and adjusting the sewing frame for different sizes of books, requiring more or less cords, bands, or tapes. It will be found advisable to spend time in determining proper sizes of thread to be used, selection of cords, etc.

Cords or Bands—The sewing of books by hand is usually accomplished by using some type of reinforcement in the form of cords or bands, *sunken* into the backs of the sections, by means of slots or grooves *sawed-out* to receive them; soft

Fig. 164—The Sewing Frame in Use, Showing Adjustment of Cords, Position of Material to be Sewn and of Operator's Hands While Sewing

binders twine is used, and obtainable in 2 to 7 ply for strength, and unbleached. (Bleaching weakens thread and cord). For the work you will do in this lesson, a four-strand cord or twine will be suitable.

Cord or twine should be selected by number of strands, should be unbleached, and selected by reason of strength required for small, light books or thick, heavy volumes.

Thread—The thread for hand sewing should be selected with care and linen thread is preferable because of strength. Unbleached thread is strongest. The thickness of thread to be used depends upon the character of the sections to be sewn. Thick, heavy sections require a strong, heavy thread, while thinner sections will be made unwieldy if heavy thread is used. Heavy thread in thin sections (usually *thin paper* sections) will give book a wedge-shaped appearance to back, and make shaping the back difficult later on. A book of few sections, on thin paper, requires a heavier thread than a book of many sections also on thin paper. This is for the reason that *some* thickness of thread is desirable to aid in shaping the back.

To the Teacher—Demonstrate this rather difficult point to the complete understanding of the student. Several sewed examples, some of them incorrectly sewn, will be helpful.

Thread must be selected with consideration to thickness of sections and paper used, thin thread for thin papers, thicker thread for thick papers.

For your needs in this project, a three or four cord, number 12 or 16 thread will do. Other threads used are two, three and four cord (or strands) in size Numbers 12, 16, 18, 20, 22, 24, 30, 36, 40, and 50. The higher the number the thinner the thread.

Sawing-out—Books may be sewn with the bands or cords on the *outside,* over the back of the sections. With this form of sewing it is customary to fit the cover over the projecting ridges and make what are known as "raised-bands" showing on the cover-back. That is a more difficult piece of work than you are now trained to do, consequently we will adhere to the "sunken-band" type. For this style we must "saw-out" slots or grooves across the back of the sections, each exactly in line with the next section, and all placed in a harmonious position up and down the back. Most books look

best and are strongest if sewn on five bands. For five-band sewing the length of the back should be divided into six sections, the upper five all equal, the one nearest the "tail" of book a bit larger. Now we are ready to start.

1. Take one of your arranged (gathered) books that you "collated," make sure it is carefully jogged to back and top.
2. Cut two pieces of scrap board, fairly thick, to the same width and length as your book face. Lay these on either side of book and jog again carefully.

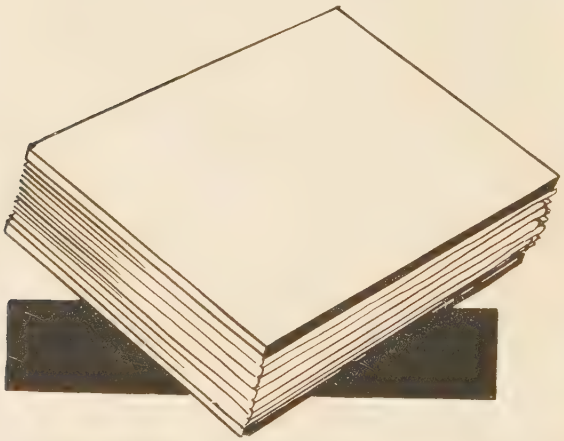


Fig. 165—Book Jogged with Board on Either Side

3. Holding book firmly, jogged as before, place it in the job backer or a finishers press, with the folded sections of the back extending about $\frac{1}{2}''$ above jaws of press or bars of clamp press. (Figs. 166-167.)
4. Measure the length of the back of the book, and, assuming it is 9″ long, mark off with soft black pencil firm black lines as in Fig. 168. Use your T-square in order that lines may be truly at right angles with boards.
5. Now mark a lighter line down $\frac{3}{4}''$ from top and $\frac{3}{4}''$ from the line nearest the "tail" of book—these are for your "kettle-stitches."

Fig. 166—Placing Jogged Book in Job Backer Preparatory to "Marking-up" and "Sawing-out" for Bands or Cords

6. With your backing saw, cut grooves one-eighth inch deep, exactly on each line across the back. Hold your saw

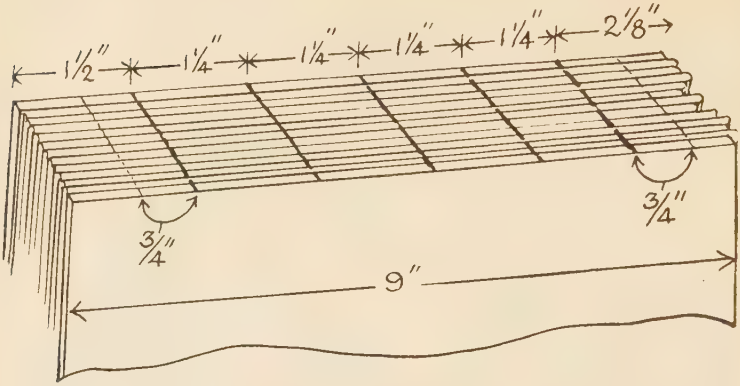


Fig. 168—Back of Book "Marked-up" Properly for "Sawing-out"

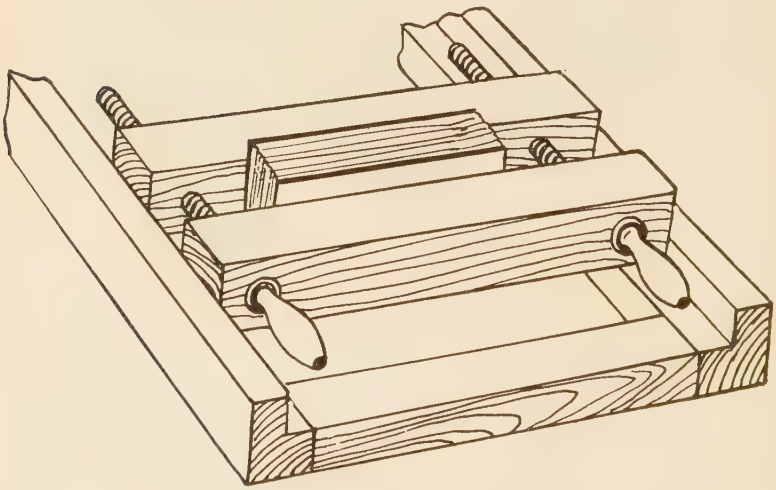


Fig. 167—Book in Finishers Clamp or Press

blade exactly vertical and cut all grooves same depth. (See picture on next page.)

7. Next cut with saw the two grooves marked lightly. Cut these only one-sixteenth of an inch in depth.
8. Dust off your book and carefully remove from press.
9. Repeat this operation with your second book. If the length of this book is different from the first, arrange your spacing in similar manner. If it is a longer book lengthen out spaces between saw grooves. If shorter, close up spaces (but do not make less than 1″ apart) or drop out *one* cut, leaving three spaces in deep grooves instead of four.

Sawing for bands must be done carefully and accurately; spacing for bands should be harmoniously arranged for appearance as well as strength.

We are now ready to set up our sewing frame and sew our books.

View of Sawing-out Frame Made of Two Finishers Clamp Presses Imposed on a Wooden Frame

1. Place sewing frame on bench in front of you. If frame has slotted base and bar to receive bands or cords it probably has a projection on the under part of baseboard designed to extend over table edge and keep frame firmly positioned while sewing.

2. Lay your book on sewing frame with back of sections *toward* you, head of book at your right hand (assuming you are right handed) about three inches back of the two vertical posts.
3. Cut 5 lengths of your soft twine or cord long enough to fasten through the baseboard and extend up to the crossbar and allow for tying. The crossbar may be placed high enough above book to be out of the way of your hands and left arm which will reach inside the *left hand* post and hold book.

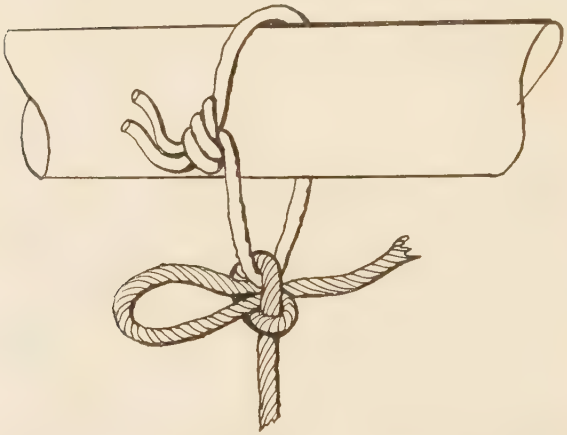


Fig. 169—Diagram of "Lay-Cord" Attached to Crossbar and Method of Tying Cords to "Lay Cords" Instead of to Crossbar

To the Teacher—Explain and demonstrate how book when completely sewn will be slid up the bands and bands cut off with due allowance on either side of book for tipping down. Explain also that when a quantity of books are to be sewn on the same frame, a ball of cord is used for each band, the cord balls remaining in a box on the floor under the bench and drawn up as each book is sewn and "cut down," to avoid waste of cord.

The cords or bands may be fastened to the crossbar in either of two ways. A simple method is to tie each around

the crossbar in a secure "slipknot." If considerable sewing is to be done first attach to the crossbar a series of five "lay cords" (Fig. 169) and then attach actual cords to these "lay cords." By this latter method the cords which will go on book are not weakened nor worn by tying around crossbar.

The cords may be held in place in the baseboard by keys or pins underneath (unless board is provided with clips for the purpose). Fasten cord around keys as shown with vertical end of cord between prongs of key; slip key into groove in under side of baseboard and hold in position while you draw it up snug on crossbar.

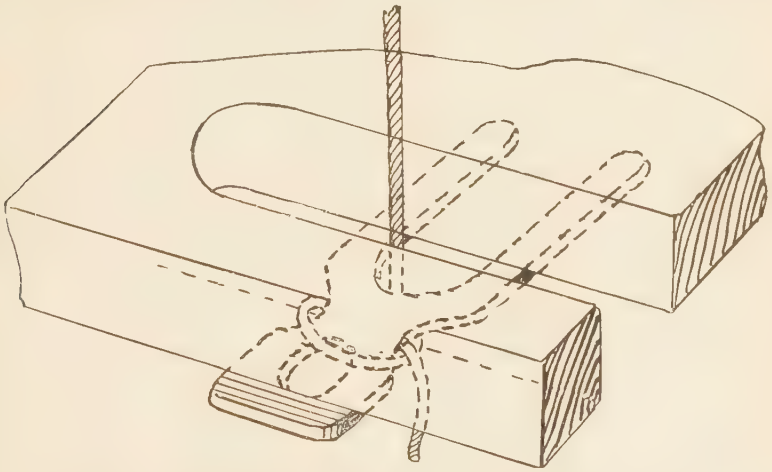


Fig. 170—Diagram of Key Used Under Sewing Frame to Hold Cords; Note Method of Lapping Cord Around Key Instead of Knotting

4. Place your cords on frame in positions to fit the grooves you sawed in backs of sections. Keep your cords toward the right hand post that you may have plenty of room for your left arm *inside* the left hand post.
5. Bring your book up close to cords, move each into exact position of grooves on back of book, screw *up* the wood "nuts" on vertical posts of frame until all cords are snug, *exactly* vertical and in proper position.

6. Take one of the boards used in sawing-out book (or both will not hurt) and place on sewing frame base, being careful that the *head* of the board is toward right hand.

Fasten it in position with thumb tacks to prevent slipping. This board is to facilitate easier passage of sewing needle through sections first sewn close to frame base. (See Fig. 164.)

7. Lay your book *face* up, head toward *right* hand and away from you, on back part of bench convenient to either hand.
8. Cut off a length of thread you have decided to use, about three or four feet long, and thread your needle, leaving about 6 or 8 inches of thread to hold it in the eye of needle.

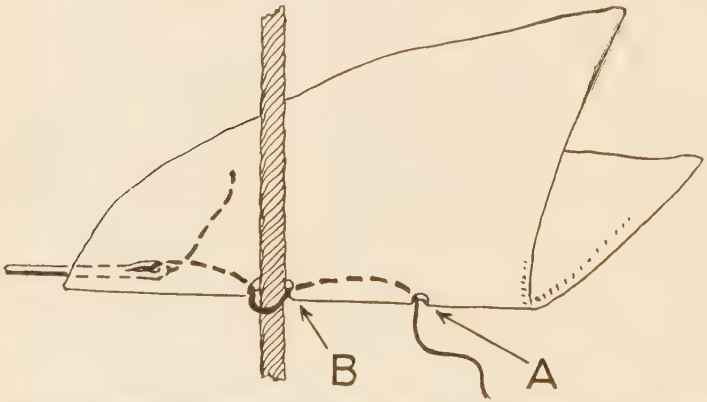


Fig. 171—Proper Method of Carrying Thread Along in Sewing

9. Pick up the first section of book, turn it over so the first page is *down* toward table, head or top toward right hand, and place it on frame, on top of board, with sawed grooves nicely fitted to suspended cords.
10. Open section at the center and hold it in position with left hand; insert your needle at the kettle-stitch marked (A), grasp needle with *left* hand *inside* section, transfer right hand to hold section against cords, and pass needle out at (B), on the *right* hand side of cord (B); pull thread through, leaving a loose end of about four inches where you entered at (A); insert needle with right hand again

at (B), but on *left* side of cord, close to cord; grasp needle again with left hand and pass it out again at (C), on the *right* hand side of cord (C); repeat process as at (B). Continue across entire length of section and *come out finally* at kettle-stitch groove (G). This calls for use of right and left hands alternately. See Figs. 164 and 171.

11. Place the second section in position as you did the first, place left hand inside section to hold it and operate needle. Pass the needle in at (G) on this second section, along the inside of section to (F) out on the left side of band or cord; in again on right side of cord and repeating process at (E), (D), (C), and (B) come out at (A).

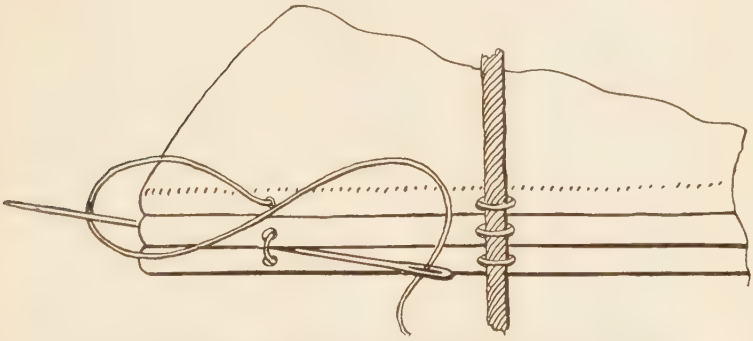


FIG. 172—PROPER METHOD OF MAKING "KETTLE-STITCH"

12. Tie the loose end of thread projecting from (A) of first section sewn, to your continuous thread at (A) of second section.
13. Place your third section, and entering at (A) proceed to sew across as before. When you reach (G) this time, before placing a new section and starting back again, *first* form your kettle-stitch by passing needle and thread *under* the (G) stitch which holds the first and second sections at that point (see Fig. 172). This makes the "kettle" or "lock-stitch," sometimes termed the "catch-stitch."
14. Proceed again and when you reach kettle-stitch (A) again, make your "kettle" stitch as at (G).

To the Student—Care must be exercised to draw thread *snug* at each stitch and around cords, else a loose, "sloppy"

book will result. Keep your sections *pressed down* firmly to help snug sewing. A piece of heavy binders board about 3″ wide and at least the length of book may be used to *press down* sections. Do your pressing closely in *back* of cords and keep book evenly jogged at all times.

15. When the last kettle-stitch is reached on the *last* section, make a *double* kettle- or catch-stitch and cut thread off about ¼″ from book.

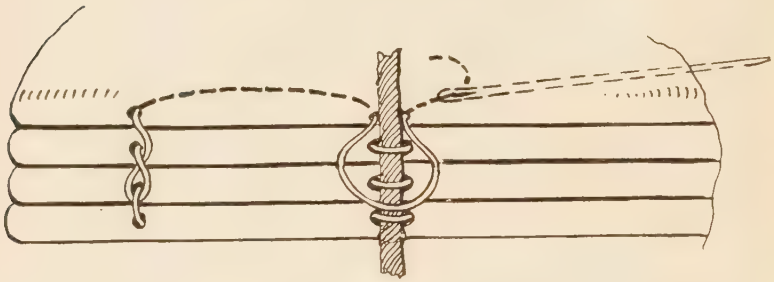


Fig. 173—Kettle-stitch Completed and Method of Carrying Thread on Return to "A"

Now we have completed the sewing and are ready to remove book from frame. To do this proceed as in Fig. 174.

1. Unfasten cords at crossbar.
2. Draw bands *down* through book, gently, leaving 1½″ of bands projecting over upper edge of sewn book. In doing this you release and remove pins or catches on under part of board.
3. Cut off cords 1½″ from under side of book. This leaves your book like Fig. 175.

To the Student—In case your thread should break while sewing or you need to add more thread, slip off needle from thread in use, cut a new length and tie on as shown in Fig. 176, No. 1. This is a "weaver's" knot. Make slipknot in new thread, slip it on over end of sewed thread, pull it tight and draw it up close to book section allowing enough distance to enable you to pass knot through with next stitch and leave it *inside* a section—*never outside.*

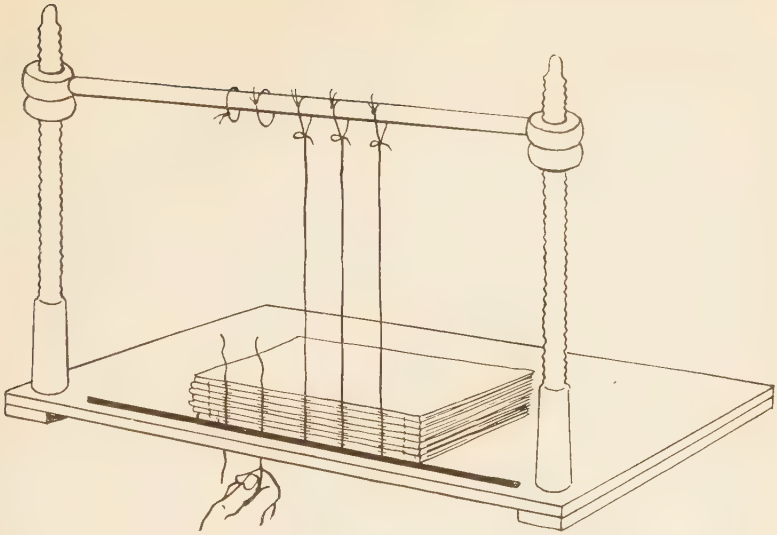


Fig. 174—Removing ("Cutting-down") Book from Frame

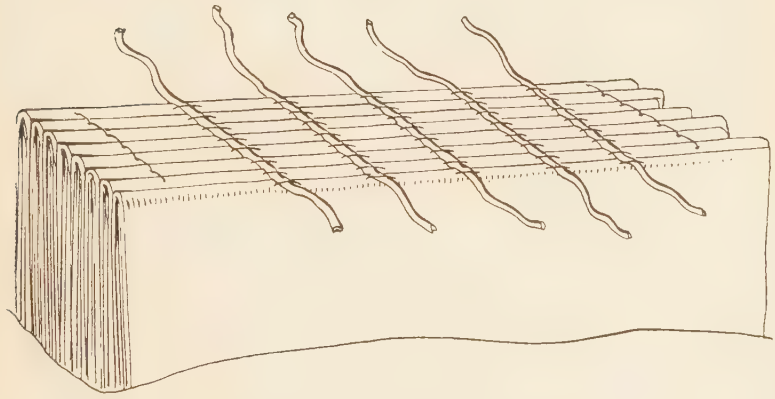


Fig. 175—Sewed Book with Bands or Cords "Cut-down" Properly, Leaving 1½" of Cord on Either Side of Book

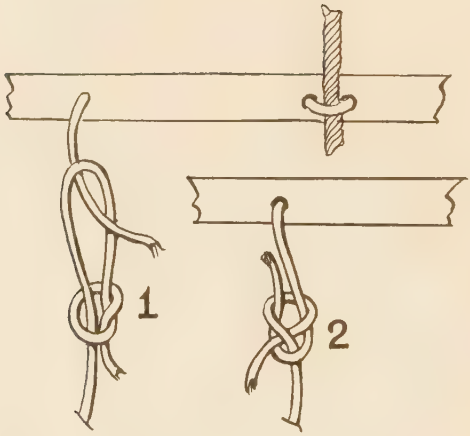


Fig. 176—Method of Tying-on a New Thread, or Repairing a Break while Sewing; No. 1 Shows Slip-knot Prepared in New Thread and End of Old Thread Inserted in Noose of Slip-knot; No. 2 Gives Appearance of *Finished* Weavers Knot when Threads are Drawn Taut

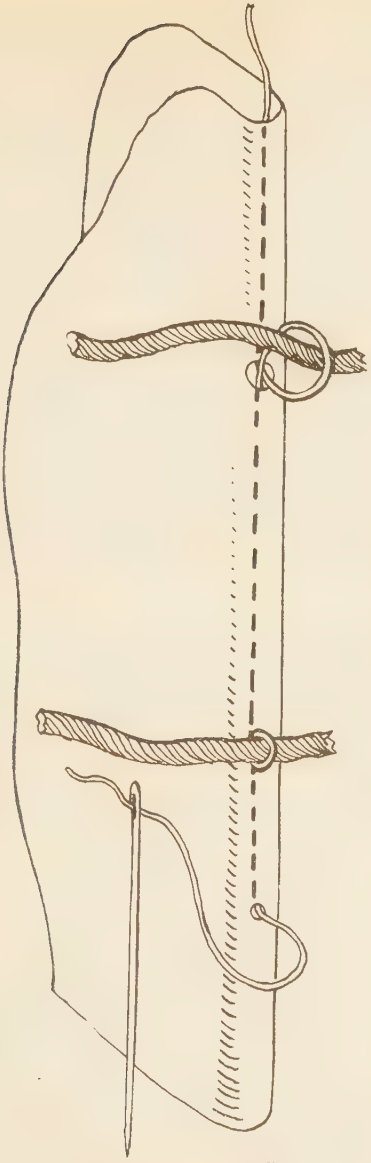


Fig. 177—Method of Sawing Without Sawing-in for Bands or Cords (Nor for Kettle-Stitches). This Style is also "All-along" but not "on Sunken Bands." This Style Calls for "Raised-bands" on Back Edge of Book when Covered

This type of sewing is called "all-along" with double kettle-stitch.

To the Teacher—There are many variations in hand sewing. If the student is able to follow instruction easily it may be well to instruct and allow a practice project or two in sewing alone, in a variety of styles. One surely should be attempted, that of marking off for bands and kettle-stitches as in this project, but *without* sawing-in for bands or kettle-stitches. To do this run cords on outside of sections, mark cord positions as well as for kettle-stitches and sew as in this project *with the exception* that thread led in at (A) comes out at *left side* of cord (B), passes around cord *outside* and in again at right side of cord and so along to (C), (D), (E), and (F). Kettle-stitches are made as in this project. (See Fig. 177.)

To the Student—Hand sewing is an operation in binding calling for care and judgment. Selection of thread and cord must be made intelligently. Sewing must be done uniformly with a firm but not too tight drawing of threads (if too tight the kettle-stitches will break when book is shaped and backed). Work carefully and be rewarded with well-bound books later. If your thread draws hard it may be waxed a trifle—a little is sufficient, do not over-do.

We are now ready to affix our end papers. You were not required to *make* end papers and *sew them on* in this project as you must first understand their uses. Because your book had no end papers it is to be hoped that you kept the sections neat and free from soiling.

1. Select a piece of white end-lining paper that will enable you to cut two pieces double the size of your book with the *grain* with the *back* of book.

If your book is 6″ x 9″ you will need two pieces 12″ x 9″ with grain 9″ way. (Fig. 178.)

2. Cut these accurately (square) and fold *with the grain* to size of your book.
3. Tip these end papers on your book front and back.

To do this first observe Figs. 179 and 180 and follow these directions:

1. First lay out the two folded end sheets, one above the other, with the folded edge of the under one extending one-quarter inch beyond the folded edge of the

Pasting-off the Fanned-out Linings Before Tipping to Books or Book Sections

"Fanning-out" to Allow for Pasted Edge

PASTING END-LININGS IN QUANTITIES

upper one, on a sheet of paper laid flat on table

2. Lay a second sheet or strip of paper on over top-lining, this sheet also $\frac{1}{4}''$ from folded edge. (Fig. 180.)

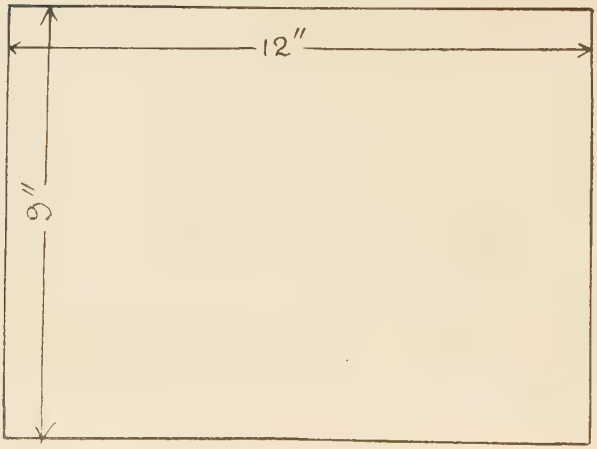


Fig. 178—Diagram of End Papers Needed

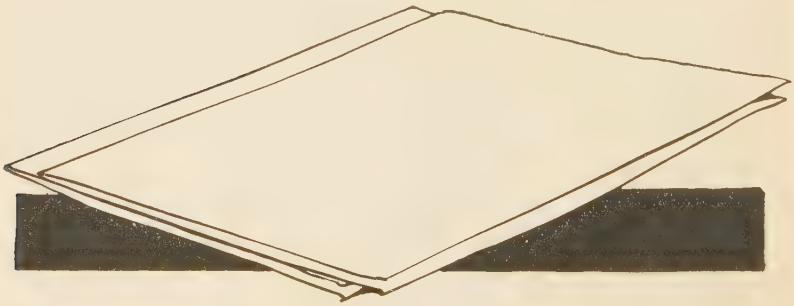


Fig. 179—Folded End Papers Laid out for Pasting

3. Paste-off the projecting edges of the two lining papers with fresh, strong paste, using paste brush.
4. Pick up linings, one at a time, after removing protection slip, and place on either side of book (Figs.

181 and 182), close to back and top edges, rubbing down firmly with hand pressure over a slip of clean paper.

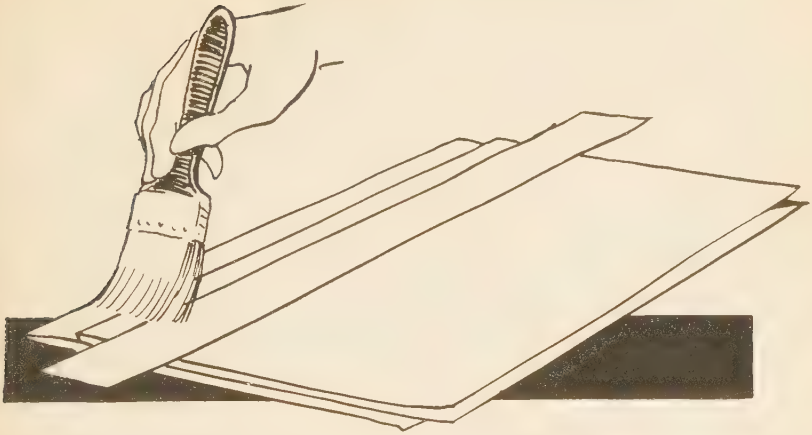


FIG. 180—PASTING-OFF END PAPERS FOR TIPPING

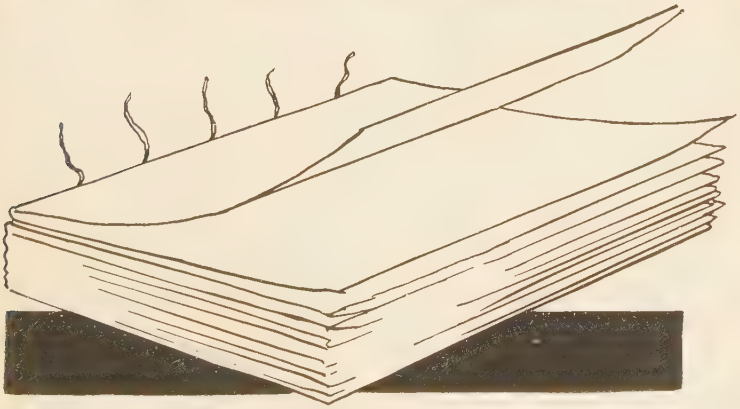


FIG. 181—END PAPERS AFFIXED TO BOOK SECTIONS

5. Lay aside *on a paper* with piece of board on top, held down with weight to dry.

We must now affix cords or bands to the book:

1. When end papers are thoroughly dry, "fray" out ends of cords or bands and tip down neatly to end papers with

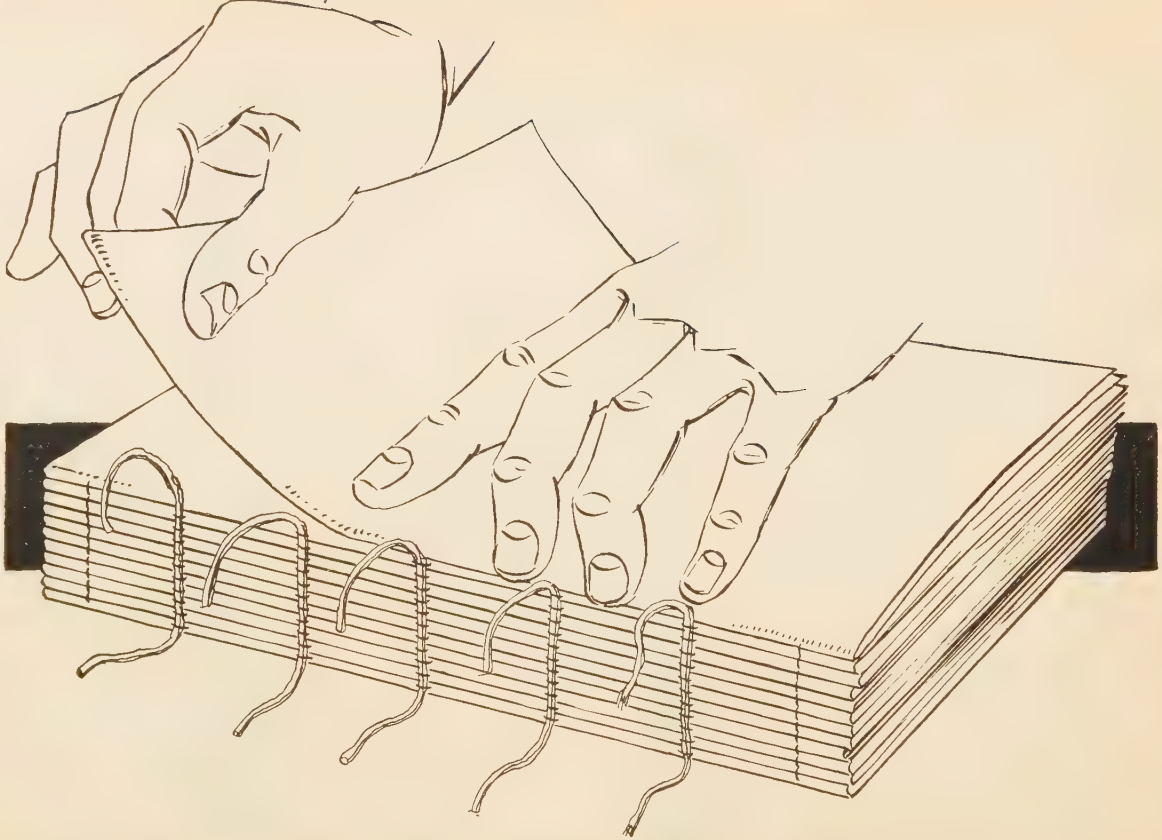


FIG. 182—ENLARGED VIEW OF PROPER METHOD OF TIPPING END PAPERS (OR LININGS) ON TO SEWED BOOK. BRING IT UNIFORMLY ALONG THE FOLDED EDGE OF FIRST AND

paste. To accomplish this use your awl and separate the fibres in the ends of cords, first cutting each off exactly one inch from back edge of book. (Fig. 183.)

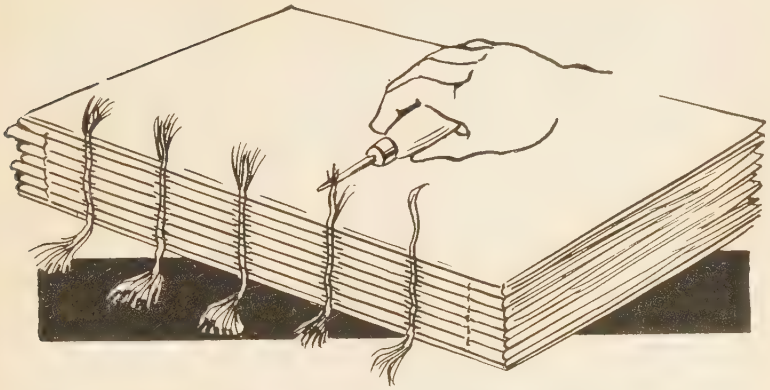


FIG. 183—FRAYING-OUT CORDS OR BANDS

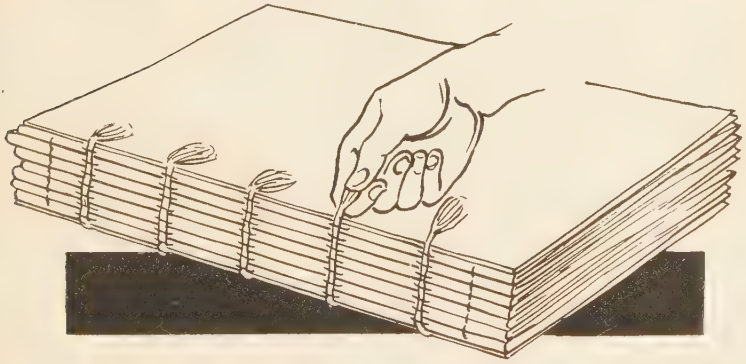


FIG. 184—TIPPING-DOWN CORDS OR BANDS AFTER FRAYING-OUT

Be sure to fray out clear back to joint so no ridges come over joints.

5. Again allow to dry, keeping book in shape, rejogging at back and head if needed.

Your book is now ready for trimming (if it is to be trimmed) and forwarded ready for affixing in cover.

To the Student—Proceed to sew your second book, *by yourself*, in the same manner as you sewed this book, after which prepare and tip end-linings, fray out and tip down cords.

To the Teacher—It has been thought best to avoid reference to necessity for "hammering" book after sewing to reduce excessive swell if such should appear. Should it be necessary or such instruction thought advisable at this point, demonstrate the method of hammering, being careful to explain the use of interleaving boards in extreme cases to prevent

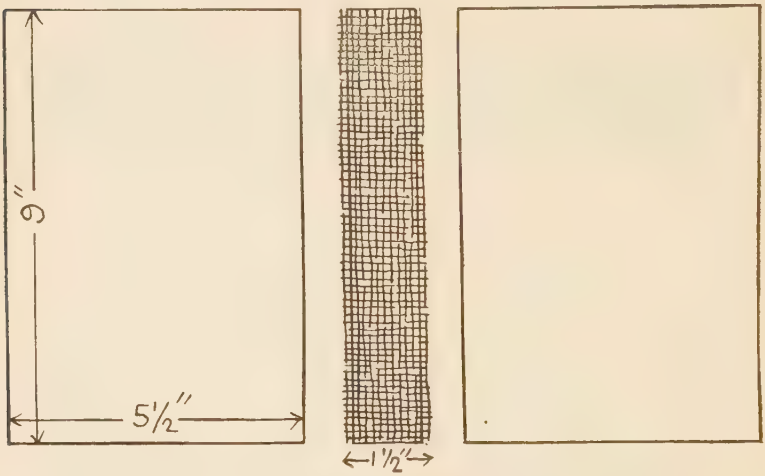


Fig. 185—Materials for a "Made Lining" Two Pieces of Colored or Fancy Papers, a Cloth Strip and a Plain White Lining of Same Quality and Size as Used in Figs. 178 to 182.

forcing book sections out of position on books with heavy swell, while hammering down. Sewing on head and tail bands will be taken up under "extra" work.

It may be well to have Student make end papers with a cloth or muslin visible joint and sew them on one of the books in this project. If so, use style shown in Figs. 185 and 186.

Making a lining is not difficult. Lay out a plain white lining sheet, (of size when folded to fit your book), flat on table. Cut two pieces of colored or fancy paper as shown in Figs. 185 and 186; also cut piece of muslin or book cloth for *visible* joint. Glue-off cloth strip and affix to lining exactly centered

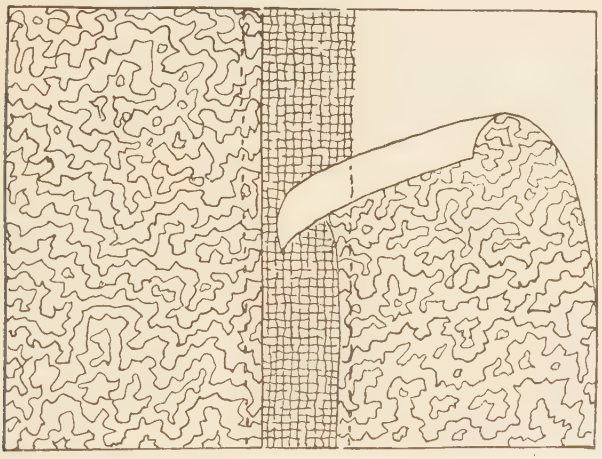


Fig. 186—Making the Lining on a White Backing Paper

vertical way of lining; glue-off and affix colored sheets *overlapping* cloth joint $\frac{1}{8}''$ on either side and flush to white lining edges; fold in center *after* drying *flat*.

When linings are to be sewn on, they should, quite obviously be prepared before sawing-out and sawed-out with book.

In the next Lesson and Project we will complete these two books and affix (case-in) covers.

TEST QUESTIONS

1. What is collating?
2. Draw a rough diagram of a sewing frame.
3. What are cords, bands, tapes?
4. What thread should be used in a book having twenty sections each $\frac{1}{8}''$ thick?
5. Explain sawing-out.
6. How do you determine number of cords to use?
7. Explain "all-along" sewing.
8. What is a "kettle-stitch"?
9. How should threads be tied?
10. Explain fraying out cords, tipping down cords and affixing end papers.

LESSON XXI

FORWARDING—CASING

To the Student—Your books have been prepared for binding to the point of deciding if it is necessary to retrim the edges.

On rebound volumes the edges usually need retrimming, at least a thorough cleaning. If a slight trim can be given it will be found the simplest and quickest way of providing a smooth, clean, attractive edge.

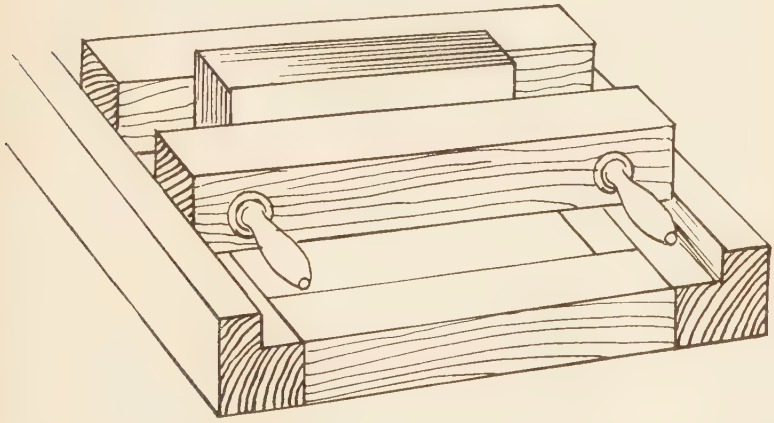


FIG. 187—BOOK JOGGED AND PLACED IN FINISHER'S OR GILDER'S CLAMP PRESS FOR CLEANING EDGES

When it is intended to use the cover removed from old book, care must be exercised not to trim book to the extent that huge "squares" (margins between edges of book and edges of cover) will result. If edges are fairly even and only a slight smoothing or cleaning needed, clamp the book again in job backer or finisher's press (Fig. 188) bringing the edge to be

worked on about one half inch above jaws of press, screw up press snugly and with piece of fine sandpaper (No. 00) smooth edge evenly with longitudinal strokes.

Fold your sandpaper double and in a folded piece about 4″ x 3″, hold in horizontal position in order that "sanded" edge may not only be smooth but true, and not full of "hills and valleys." Unscrew and turn book in press for each edge.

Should book actually require retrimming, as the magazine you are binding undoubtedly will, consult your instructor for advice in trimming.

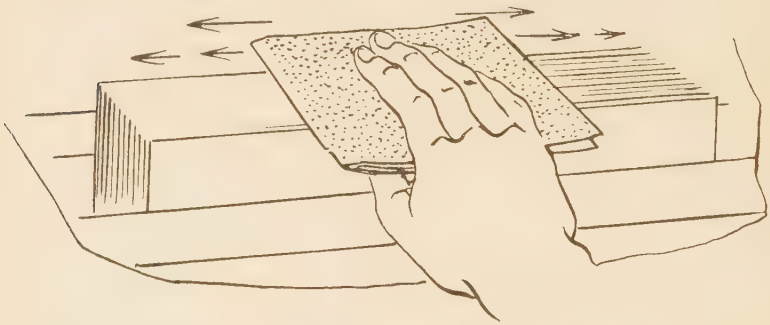


Fig. 188—Cleaning Edges with Sandpaper

To the Teacher—If school is equipped with lever cutter and student has had experience in previous projects in cutting it will be satisfactory to explain method of operating and let student proceed on own initiative following instructions. Under no circumstances allow untrained student to use even a hand-lever cutter and do not permit two or more students at a cutter at same time, except in your presence. Two students *cannot* operate a cutter together without DANGER! It is advisable to especially train one dependable student several steps in advance of others, who may be used as an assistant in helping the less experienced.

Plough and Press—If for no other reason than to acquaint students with the now obsolete method of trimming books by hand, a plough and press is recommended. It is a safe method of teaching edge trimming and prepares student

for more advanced work later on by teaching the necessity for accuracy. In using Plough and Press (Fig. 189) carefully

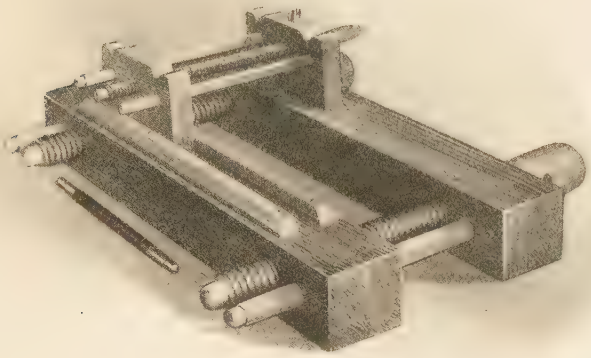


Fig. 189—Plough and Press for Trimming Edges

demonstrate the mechanism and method of operating to students, using old books or pads of book papers and require them

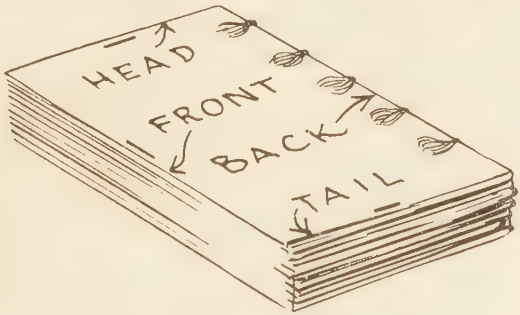


Fig. 190—Dimension Marks for Guidance in Trimming Edges

individually to set and operate it until they have mastered the "knack" of positioning book and regulating knife.

To the Student—In preparing book for trimming it is wise to mark on the outer end paper in pencil the exact dimensions to which book is to be trimmed. This prevents errors in cutting and enables you to check up on the margins of the book *before* you may possibly spoil the book. (Fig. 190.) When book is laid in cutter these marks will facilitate setting the gauge for cutting.

You can bring down clamp until front edge of clamp just covers your mark and know that the knife will cut exactly to that point.

PROJECT 21

Forwarding and Casing a Book

Materials Needed:
2 Sewed books from Project 20.
Several pieces of board and paper.
Kraft paper.
Crash or super.
Glue and paste.
Sandpaper No. 00.
¼ Yard No. 0 mercerized headband.
½ Yard book cloth.

Tools Needed:
Plough and Press or lever cutter.
Glue and paste brushes.
Backing hammer.
Sponge and water cup.
Pair edged pressing boards.
Table screw press.

Book Trimming—This is another operation that requires extreme care if spoilage is to be avoided and true, square edges to result. Proceed in this manner with a lever cutter:

1. Make sure book is squarely jogged at head and back.
2. Lay book face downward on a piece of waste board that is, itself, square and a trifle larger than book, *all* around (Fig. 192) with *head* and *back* of book flush with corresponding edges of board.
3. Place in cutting machine, *head first*, back of book against right-hand gauge of cutter, and with head of book against back-gauge. (Fig. 193.)
4. Run back back-gauge of cutter until your mark for trimming the "tail" of book, when book is pushed snugly

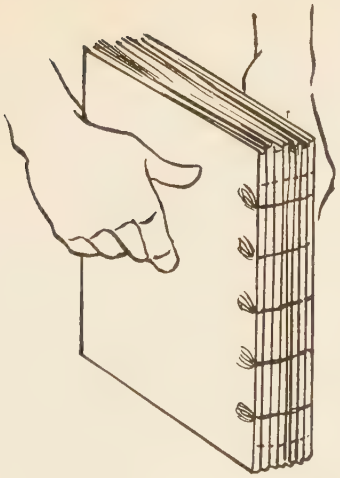


Fig. 191—Jog Carefully to Back and Head Edges

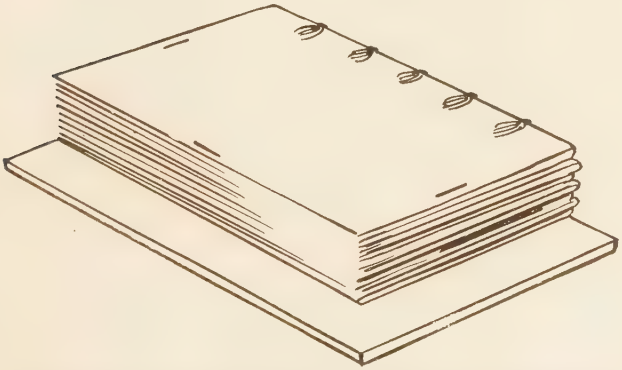


Fig. 192—Book on Board Slide Ready for Trimming

back against cutter back-gauge, comes *exactly* even with the clamp bar of cutter when it is brought down. (Figs. 194 and 195.)

5. Lock the gauge with handle under cutter base plate.
6. Set the clamp if operated by hand wheel.
7. Bring the operating lever *downward* with steady continuous motion, thus bringing the knife into action and *cutting* through book and *cardboard;* clean away trimmings,

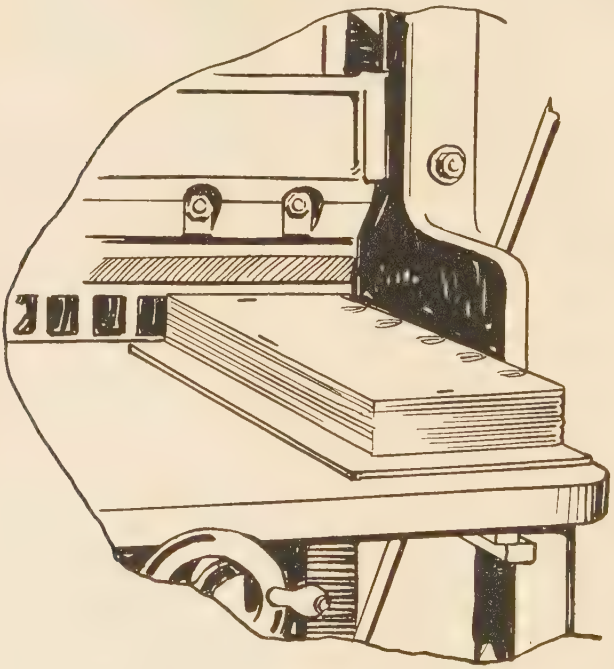


Fig. 193—Book Back Snug Against Right Hand Gauge, Head of Book Against Back-gauge

release operating bar back to vertical position, loosen clamp.

8. Turn book around in cutter, putting the *back* of book snugly against back-gauge, the newly trimmed tail edge of book against right hand gauge, work back-gauge back or for-

ward until you can get it *exactly* on a line with your mark for trimming the *front* edge of book. (Fig. 195.)

9. Proceed to cut front edge as you did the tail edge.

10. Next *turn book over* on its face, transfer your mark for cutting the *head* to back page, jog evenly, lay on board again with *tail* and *back* edges flush with board; place

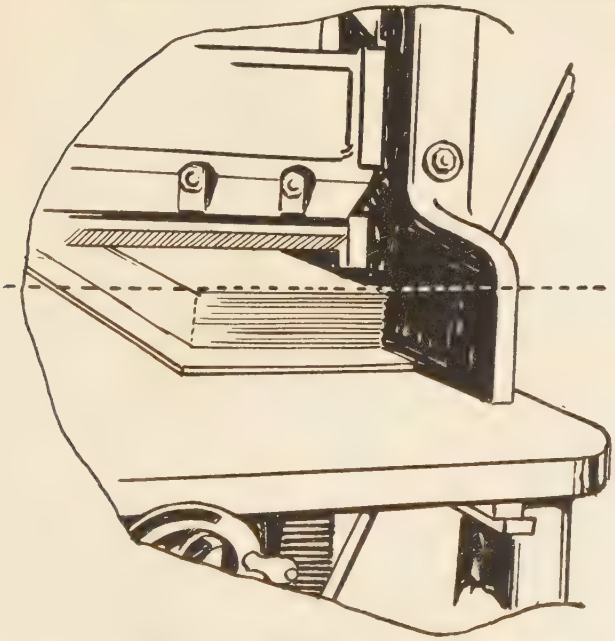


FIG. 194—BOOK IN CUTTER; DOTTED LINE INDICATING PLACE FOR CUT

in cutter with *tail edge* against back-gauge and *back* edge of book against right hand gauge of cutter.

11. Bring clamp down and position book as in two previous operations and cut top or head of book.

Sewed books should be first cut on tail or foot edge, using head and back edges as guides, then on front or fore-edge; finally on top or head. Cuts must always be made AWAY from the back fold of section to avoid TEARING OUT portions of fold. (See Figs. 196 and 197.)

To the Student—Trimming or cutting book edges calls for extreme care and accuracy. Books must be kept squarely jogged all through three cuttings. Clamps must be set solid each time and gauge locked *before* making cut. A piece of board same size as *untrimmed* book laid on top of book before clamping will prevent soiling end papers with oil from cutter and eliminate clamp marks on book.

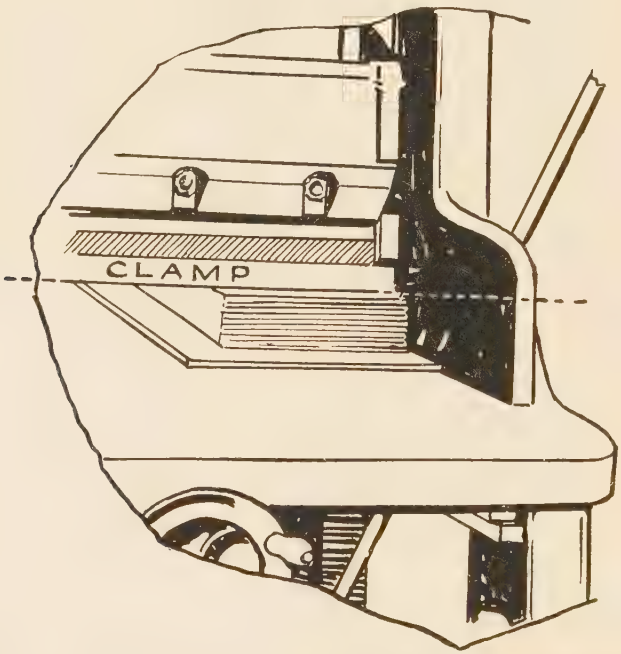


Fig. 195—Book in Position and Clamp Set for Making Cut

A cutter is a dangerous machine to fool with. Operating arm must be pushed as far as it will go on down cut and as far BACK as it will go in a vertical position between cuts.

NEVER LET ANYONE TOUCH OPERATING LEVER WHILE YOU ARE SETTING GAUGES OR CLAMP.

Your book is now trimmed, and if your work was done carefully, presents a neat, smooth edge on three sides and a firm square back.

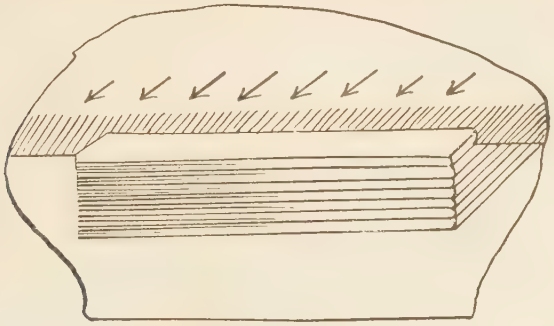


Fig. 196—Correct Movement of Knife in Cutting Head or Tail Edges of Book; Stroke *Away* from *Back* of Book

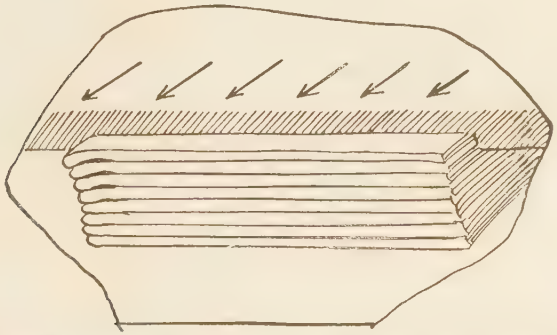


Fig. 197—Incorrect Movement of Knife in Cutting Head or Tail Edges of Books; Note Dragging Tendency of Knife Which Often Results in Irregular and Torn-out Sections

The next step calls for carefully gluing-up the *back* of book from top to tail edges with a thin coating of *flexible* glue, applied *warm* and well rubbed in, while book is held

under pressure. Ordinarily, in actual practice on machine sewed books, this is done by jogging each book, piling several books one above the other, backs all even and toward the worker, holding the pile firm with left hand and applying glue with brush held in right hand. (Fig. 198.)

For hand sewn books, and during all practice work, it is advisable to clamp the books either in a job backer or finisher's clamp, in order to prevent book "shifting" in shape

Fig. 198.—Gluing-up Backs of Books in a Large Bindery

during gluing and to avoid glue "running-in" on book sections through the saw grooves (or kerfs).

Gluing-up is done before "backing" with warm, flexible glue over entire back while book is under pressure.

Proceed in this manner:

1. Make certain your book is still carefully jogged and all three trimmed edges smooth and free from "starts" (i. e., sections moved out from each other like steps).
2. Cut a pair of stiff boards slightly larger than the trimmed book and place one on either side with one long edge of boards *flush* with *back* edge of book. (Fig. 199.)

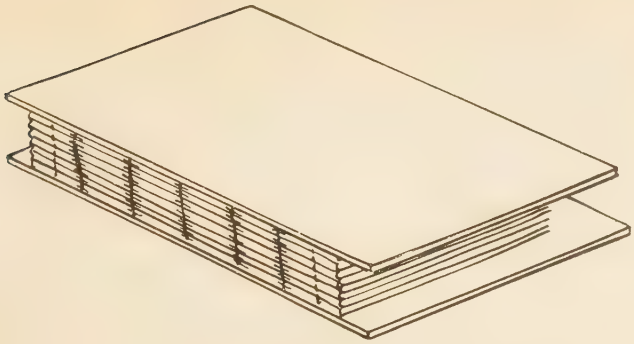


Fig. 199—Trimmed Book Jogged, with Cardboard Protectors Ready for Clamping

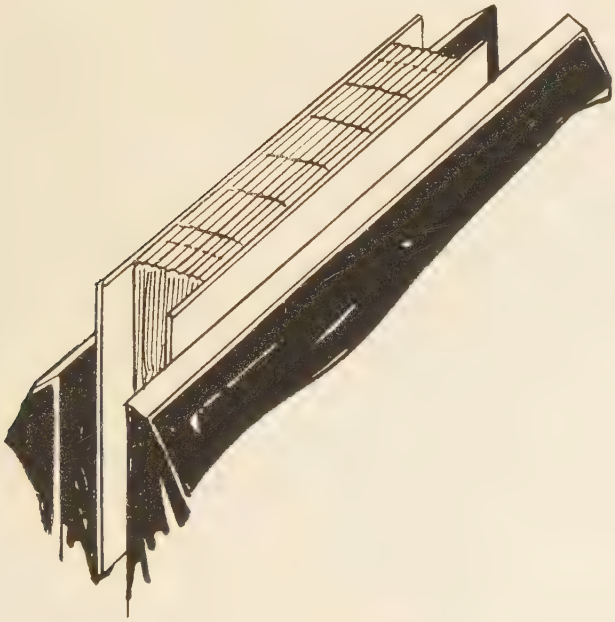


Fig. 200—Book Clamped in Job Backer Ready for Gluing-up the Back

3. Place book, *back* edge *up*, in job backer or finishers clamp and screw up snugly, leaving book above jaws of press or cheeks of clamp a convenient distance. (Fig. 200.)
4. Using flexible glue, warm, not thick (about the consistency of corn syrup), carefully glue-up the entire back edge of book, rubbing glue well in between sections, over and around cords and in saw cuts. Finish with final brushing *entire* length of back.

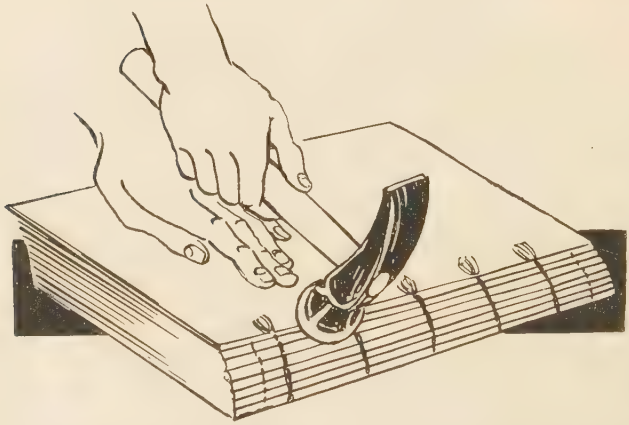


Fig. 201—Shaping Book or Rounding

5. When glue has "set" but not *dried* thoroughly, remove from clamp or backer, take off boards, lay book on iron slab on table, *front edge* of book *toward* you, and with your light backing hammer gently shape the book "into round." (Fig. 201.)

This is accomplished by tapping along one edge of back, working gradually toward the center of the book thickness, the stroke of the hammer being made toward you. Turn book over and repeat on reverse side. When finished your book should look like Fig. 202.

6. Hang the set of backing irons on jaws of job backer (unless backer jaws are especially made to do without backing irons or boards), bring your book up from underneath between jaws until exactly $\frac{3}{16}$" of book back projects above

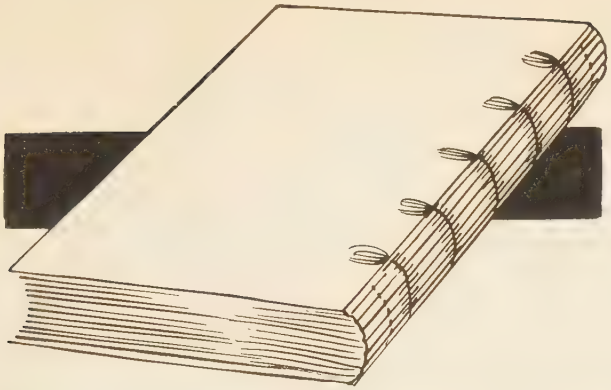


FIG. 202

PROPER METHOD OF ROUNDING OR SHAPING BACK

jaws; tighten jaws firmly. It will do no harm to have a piece of thick binders board on either side of book, provided they are *set down* from back edge $\frac{3}{16}$" and flush with backer jaws.

Fig. 203—Appearance of Rounded Book When Properly Placed in Job Backer

Fig. 204—Backing the Book; Use Hammer with a Sidewise Stroke

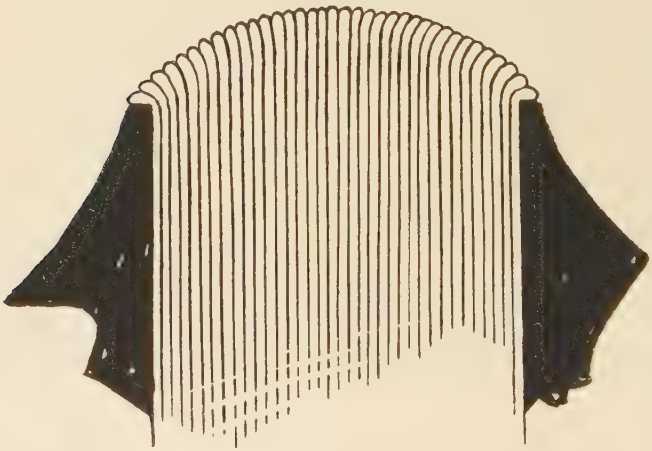
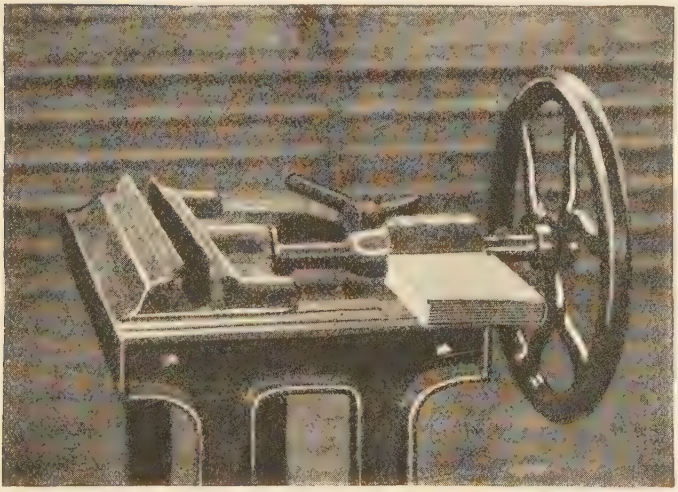


Fig. 205—Correct Shape of a Rounded and Backed Book

7. Using your backing hammer, start tapping along the two edges of back nearest backer jaws, working the entire length of book and at same time working over the entire width of back, obtaining a perfect "round" to book, alike along the entire back. You must be very careful not to strike too hard at any one point but with a sidewise motion to hammer, which will first shape sections toward jaws and gradually set them in that position. When properly done your book will resemble Fig. 205 when removed from backer.



Job Backer with Backing Jaws in Place

Rounding (or shaping) and backing a book must be done carefully to avoid breaking sewing threads by straining sections apart.

Reinforcement of the back of the book and thorough gluing of book to hold sections in the new shape is our next object. We must also affix "headbands" to improve the appearance of the head and tail edges of book at the binding points. Our first step will be the affixing of headbands.

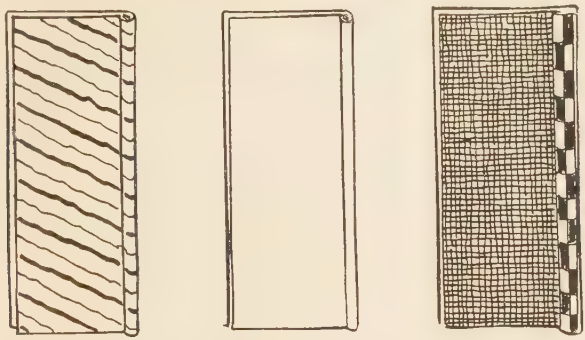
When books were entirely sewn by hand and before the advent of woven headbands, these little decorative additions

Backing the Book—Note Sidewise Stroke

Placing Rounded Book in Backer and Testing Allowance for Joint

to a well bound or de luxe volume were *sewn-on* either end of book by hand, using various colored cotton or silk threads or cords.

Today, with silk and mercerized cotton woven headbands available in a variety of widths and colorings, such



Striped Muslin Book Cloth Woven Silk

Fig. 206—Types of Headbands

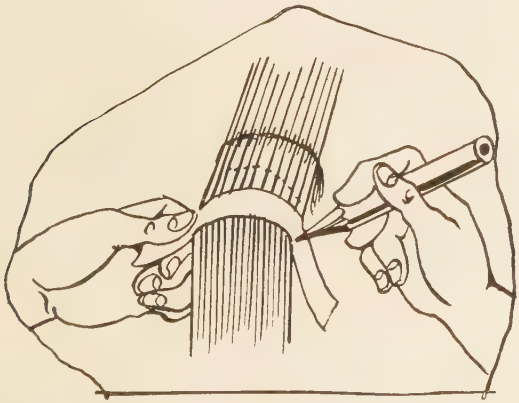


Fig. 207—Measuring for Headband Lengths

laborious effort is saved. Headbands may also be made of shirting (striped cotton), muslin or of book cloth to harmonize with cover.

Woven headbands come in spools of 144 yards each; in white and color combinations of red and gold, green and gold, blue and white, etc., etc. (Fig. 206.) "Made" headbands of

Fig. 208—Measuring-off Headband with Paper Marker

book cloth or shirting over ordinary cord is the most common type employed in edition work. For the better grade and more costly books, mercerized cotton and silk headbands are used.

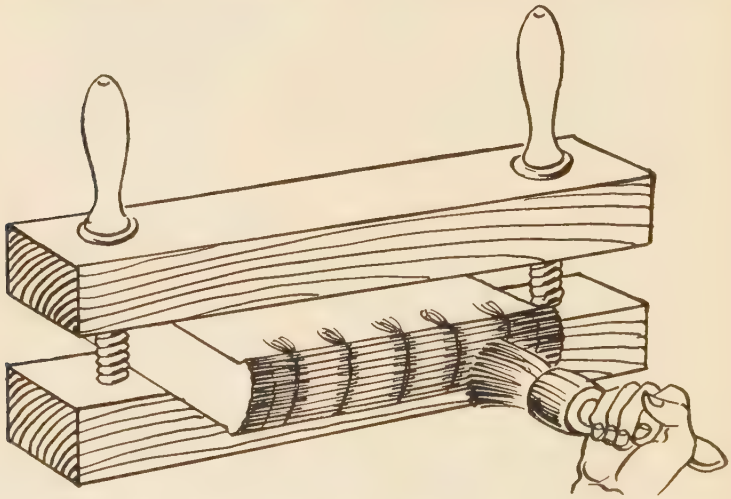


Fig. 209—Gluing-off Back Near Head and Tail for Affixing Headbands

For our purpose we will select a piece of mercerized woven cotton headband in size No. 0 (size No. 00 is smaller; No. 1 or No. 2 larger, than No. 0). Select a color combination that is harmonious with your binding.

1. Cut a strip of any kind of paper $\frac{1}{2}''$ wide and 3″ long.
2. Measure your book to determine length of headbands needed. (Fig. 207.) To do this measure distance from joint to joint of back and mark off on strip with pencil. Lay strip flat on table, measure distance between marks. Cut two pieces of headband that length.
3. Lay book in finisher's press again projecting about 1″ above "cheeks" and tip press up on table so that book is horizontal and press vertical. (Fig. 209.)
4. Glue-off each end of back of book about $1\frac{1}{2}''$ from ends, using

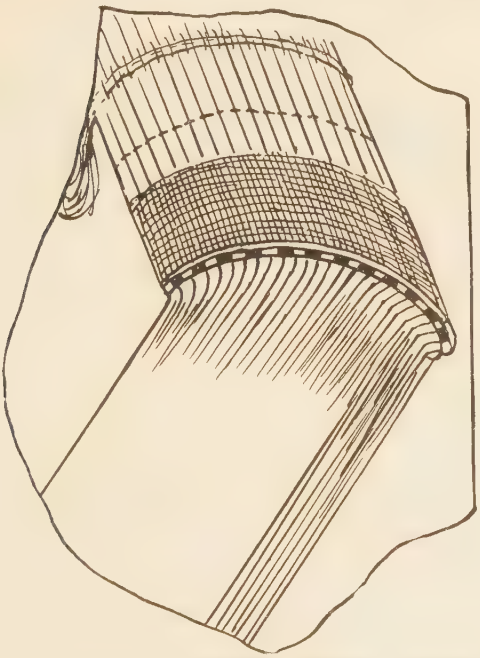


FIG. 210—HEADBAND AFFIXED (GLUED) TO BOOK BACK

a small glue brush and working brush *toward* the ends of book so no glue will slop over on to top or tail edge of book. Work quickly.

5. Pick up your piece of headband and place it over glued area. extending from joint to joint of book, with the bright

woven side next to book and the "ridge" or "band" extending *over* the edge of book. (Fig. 210.) Allow thorough drying.

Reinforcement of the backs of books is made in many ways. The simplest and most commonly used is by means of "crash" or "super" as it is usually termed. This is a coarsely woven mesh of strong cotton thread, heavily starched after weaving to give stiffness and strength. It comes in various sizes of mesh from very fine, close weave to very coarse, open weave. A medium weave about 28 x 32 mesh will do.

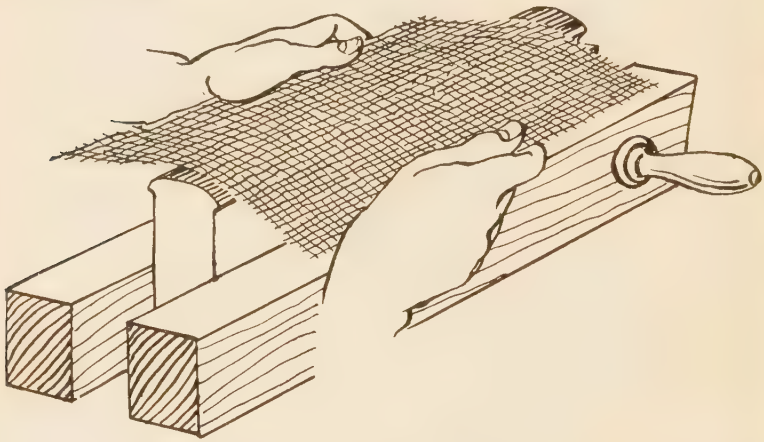


Fig. 211—Applying Crash or Super

6. Measure the length of the book inside of the headbands you have affixed, and measure the "round" of book with your paper strip again. To the width of "round" add $2\frac{1}{2}$" to allow for $1\frac{1}{4}$" overlap of crash on either side to extend over joints onto the end papers.

7. Cut a piece of crash the size desired. Cut with shears and make edges even and square. Also cut a piece of good weight, strong kraft or manila paper the width of back of book and long enough to extend the length of entire book, *over* the headbands to a point $\frac{1}{8}$" from either end of book. Lay these on table handy.

8. With flexible glue, warm, and of same consistency as used for gluing before backing or a trifle thicker, glue-off entire back of book between headbands and onto both headbands—but not enough to smear up projecting edges of headbands.
9. Tip your press backward until it is flat on table so book is again presented with back *up;* lay on your piece of crash, extending evenly on both sides of joint and exactly in between headbands. (Fig. 211.) Rub down quickly with folder.

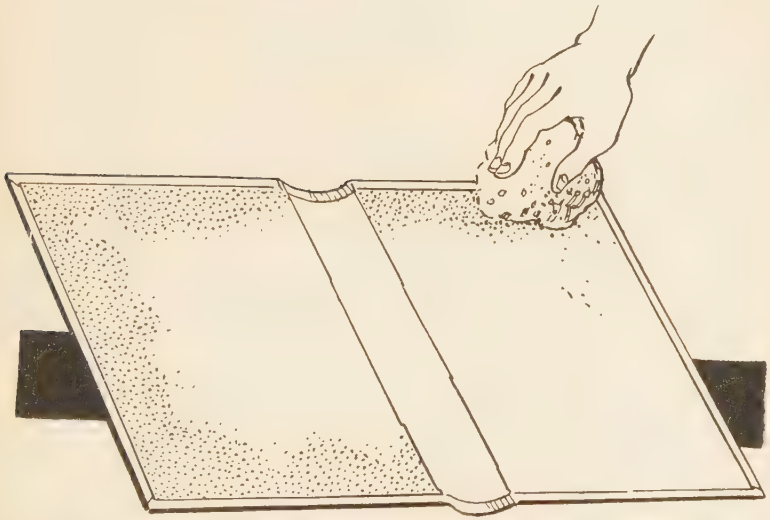


Fig. 212—DAMPENING END-LINING PAPERS ON COVER REMOVED FROM BOOK, PREPARATORY TO SCRAPING OLD PAPERS FROM COVERS

10. Quickly paste off one side of kraft paper "back-lining" and apply it to back of book on *over* crash and glue. This should extend from joint to joint and *over* headbands at either end as far as the part of headband which has the pattern and color woven in it. Using a piece of scrap paper laid on over this paper and crash, *rub* down entire back with flat side of bone folder; allow this to dry thoroughly.

Glues "set" quickly and working with glue one must endeavor to plan operation so everything will be ready to use once glue is applied. Flexible glue allows more time than "hard" glue, which dries very rapidly.

Your book is now ready to be put back into the cover from which it was removed, provided you have kept the resewn and reshaped and reinforced book to the same bulk (thickness), same "round" and joint, and have not used up

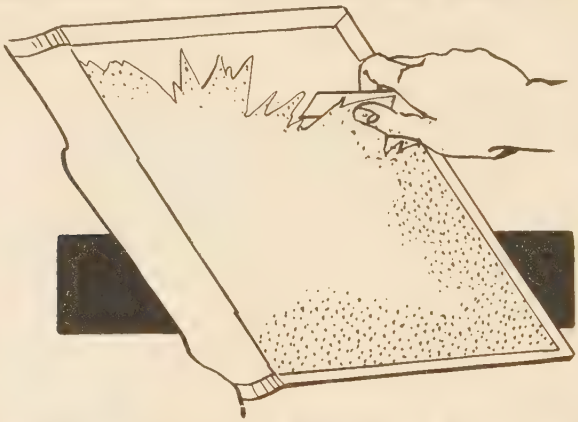


Fig. 213—Peeling Off Lining Papers from Inside Old Cover

more space on the "back-lining" and headbanding than when it was originally bound.

To determine this:

1. Lay the cover you removed from book on table, flat, face downward.
2. With a damp sponge moisten the white or colored end sheet (that still adheres to cover) all around the edges. (Fig. 212.)
3. With your binder's knife, peel away the white paper from cover all the way around the edges of both boards. (Fig. 213.)

By keeping knife blade flat against cloth and cover board, inserting the blade edge under paper, lifting and scraping slightly, you can remove the paper from the cloth turn-ins of cover and by "peeling" toward the center of each cover board, for a considerable distance in from edges.

4. Do this also along *both inner* edges of boards, parallel to the back of book. Here you can remove paper easily because of crash underneath which in "coming away" brings paper with it.
5. Endeavor to make your cover as neat and *smooth* on the insides of boards as possible. By all means clean the paper from the cloth turn-ins.

You are ready to try the "fit-up" of book to cover.

1. Lay cover flat again, *inside-up.*
2. Lay book on right half of cover, head of book to top of cover, front edge to right, under-side joint of book just projecting over the edge of board *in the back space.* (Fig. 214.)

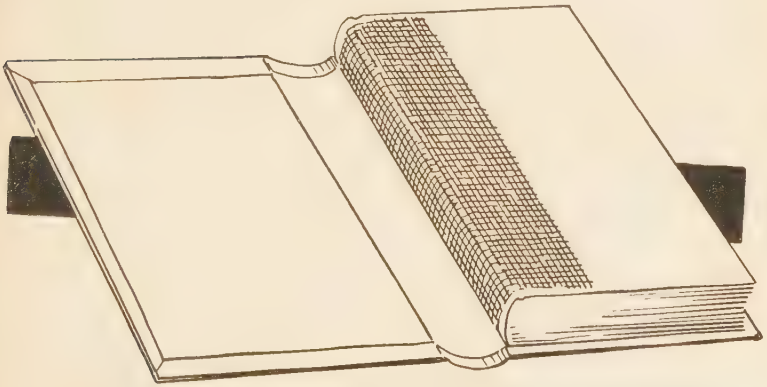


FIG. 214—LINED-UP BOOK LAID ON COVER TO TEST FIT OF COVER

3. Bring the left hand half of cover and the back edge of cover up over "round" of book until left hand cover board lies flat against top side of book. (Fig. 215.)
4. If your book will go in cover like Fig. 215 and cover boards will *lie flat,* the cover is large enough. If, however, you cannot get cover to close flat, and it remains like Fig. 216 your cover is too small and a new one must be made.

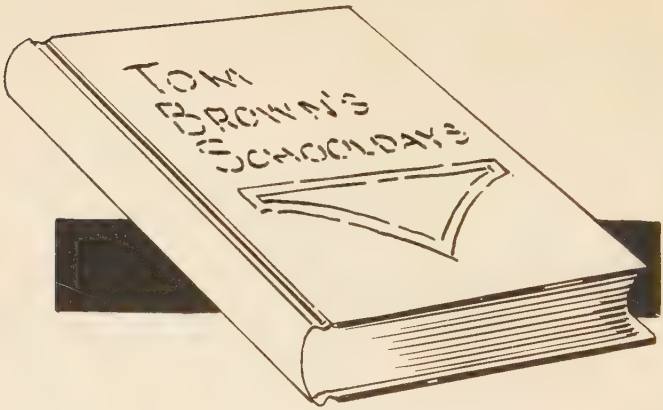


Fig. 215—Book Fitted into Cover that is Correct Size

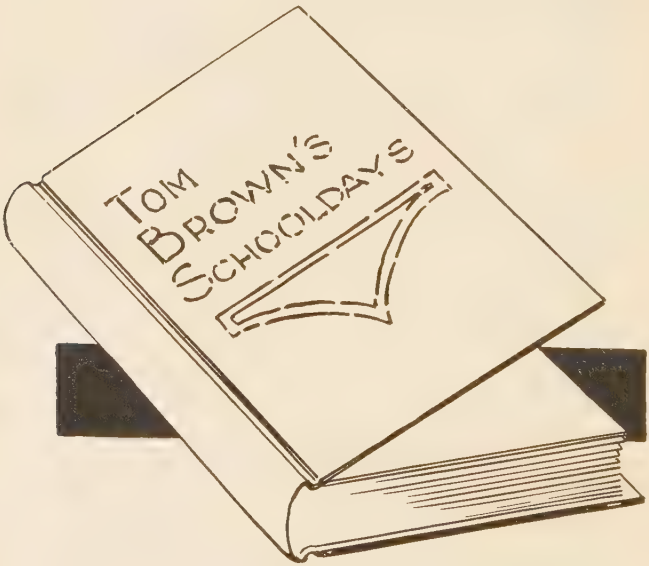


Fig. 216—Book Set in Cover Too Small for Book

To the Student—You have been allowed to progress to this point without cautioning you to keep your book in bulk and shape to fit old cover in order that you might, by yourself, discover clearly the necessity for fitting book to cover. The proper point at which to determine the fit-up of cover is immediately after book is trimmed and you prepare to shape and "back" it. If book is too thick, a pressing between jaws of a press or clamp may reduce it to desired bulk; a smaller round and "low" joints in shaping and backing will help to keep bulk down; omitting headbands also tends to help.

A cover should follow the shape of the back of a book snugly, the joints of book should rest just between cover boards in the backbone space, and cover boards should project over three book edges $\frac{1}{8}$ of an inch evenly all around on all ordinary productions.

If cover is too large in the back space, more round and higher joints will take up some of this extra space. An extra crash or paper will also help.

NEW covers fitted to NEW books should not require any of the measures enumerated—THEY SHOULD FIT EXACTLY.

We will assume your cover does fit satisfactorily, your book is ready and the old cover has been made presentable for use. We must affix book in cover.

1. Lay out book on cover as in Fig. 214.
2. With your paste brush carefully "paste-off" the lining sheet on the upper surface of book, *pasting under* crash first, then over it. Spread paste evenly, well into joint and around the bands tipped down on end sheet. Work your brush from the center and back edge *outward* toward top, front and tail edges of book. (Fig. 217.)
3. Turn the pasted side of book downward on the left hand cover board, positioned as to "joint" and "squares" properly.
4. Paste-off reverse end-lining sheet of book as you did in No. 2.
5. Lay aside your paste brush, wipe your hands, pick up the right hand cover board, bring it up, over the back of book and on to the end paper you *last* pasted-off (in same manner as you tested the fit-up of cover).

6. Make sure your book is snugly encased in cover, rub down back along joints, *both* sides, with hand.
7. Place book between two metal edged groove boards with metal binding of boards fitting snugly and uniformly in the "valleys" between the joint ridges of book and the *inner* edges of cover boards. (Fig. 218.)
8. Place book between boards in the table screw press or in a job backer or finisher's clamp to dry. Be certain that

Fig. 217—Pasting-off Papers of Book to Receive Cover. Paste *Under* Crash *First*

the shape of book is as it is intended before screwing down press. Unless boards are properly placed your book will dry in a twisted shape and come out of press a distinct disappointment.

Casing-in a book in cover requires skill in pasting, an accurate eye and NEATNESS. It also demands exacting care in shaping book for drying.

To the Teacher—The various operations in this project have, of necessity, been covered by a very meager outline of the work and *some* of the difficulties encountered and mistakes to be avoided. It will be necessary for you to enlarge upon

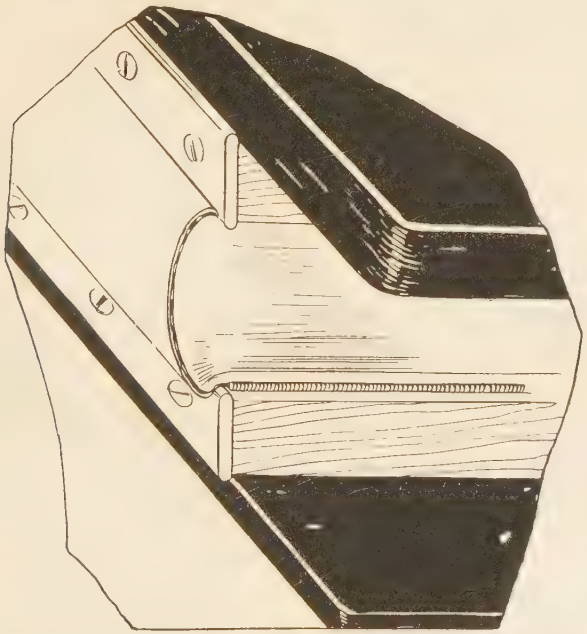


Fig. 218—Book Placed Between Metal Edged Pressing Boards and Squeezed in Table Press. Pressure Should be Just Sufficient to Keep Book Firm and Tight Preventing End Papers from Failing to Adhere Uniformly to Cover Boards, and Paste to "Set" in Joints

these teachings by demonstrations and lectures, if the training is to be reasonably effective.

We left the magazine which you carefully took apart, sewed and for which you prepared linings, ready to be trimmed. Take up the work from that point, and, following the training

you have obtained in completing the binding of your book, bring the magazine along through the successive steps until you have it ready for a cover.

Do not put headbands on the magazine.

Prepare your cover in this manner:

1. Cut a pair of boards, of the thickness you consider suitable, on the board shears. Remember that your board size should be the same in *width* as the exact trimmed *width* of your book, and the length $\frac{1}{4}''$ longer than book to allow for $\frac{1}{8}''$ squares at top and tail.

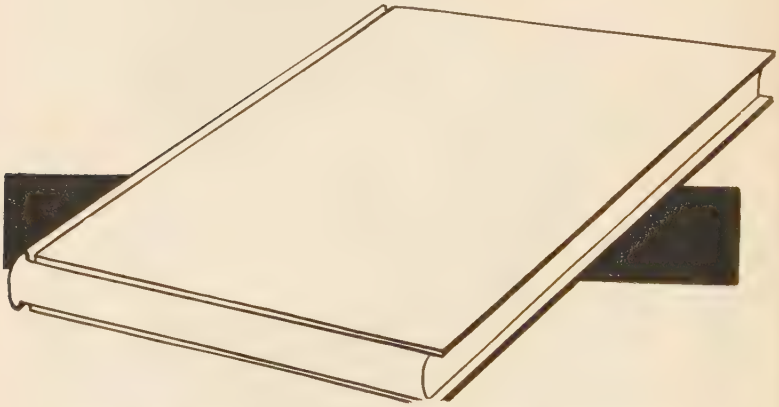


Fig. 219—Fitting Boards to Book for Cover Making

To the Student—If your magazine is 7″ x 10″ trimmed, your board size should be 7″ x $10\frac{1}{4}''$.

2. Measure your book carefully and cut your boards accordingly. Be careful to cut boards *square* and *alike*.
3. Lay your boards in position on your "lined-up" book, allowing projecting edges of boards to show "squares" on three outer edges and set boards off from "joints" $\frac{1}{8}''$. (Fig. 219.)
4. Keeping boards in that position, glue-off a piece of strong paper 2″ wide by 5 or more inches long, about 1″ in from either end of paper and carrying paper around back of book, affix glued ends to top and bottom

boards. (Fig. 220.) This gives you the *exact* space for the back of book to fit into cover. Allow this slip to dry before lifting off boards thus fastened together.

5. Lay out the pair of boards, flat, on table, select a piece of cloth or paper for cover material, measure the *overall* size of your board layout, allowing $\frac{3}{4}$" all around for turn-ins, and cut piece of cloth to size. (Fig. 222.)

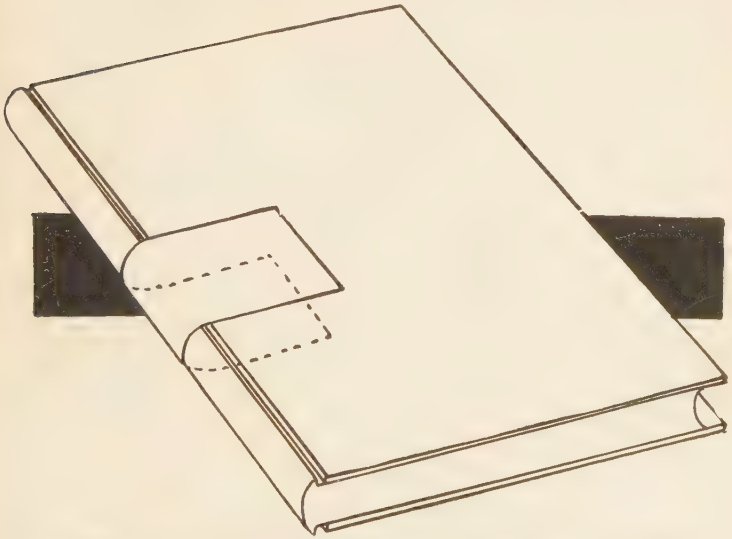


FIG. 220—DIAGRAM SHOWING METHOD OF AFFIXING PAPER STRIP TO BOARDS, WHILE THEY ARE IN POSITION ON BOOK, TO DETERMINE PROPER BACKBONE WIDTH FOR COVER

6. Cut a piece of backlining paper for cover, using firm stock, the length of boards and *width* of the round of book from joint to joint (measure this with a strip of paper).
7. Lay down your cover cloth, *wrong* side up; weight down the two corners farthest from you (to prevent curling) and glue-off the entire surface, using *hard glue*.
8. Lay your boards on the glued surface, press boards down firmly and *remove* the measurement strip. (Fig. 222.)
9. Tip in the backlining paper between boards and rub it down. Be sure paper extends exactly to top and tail edges of boards. (Fig. 222.)

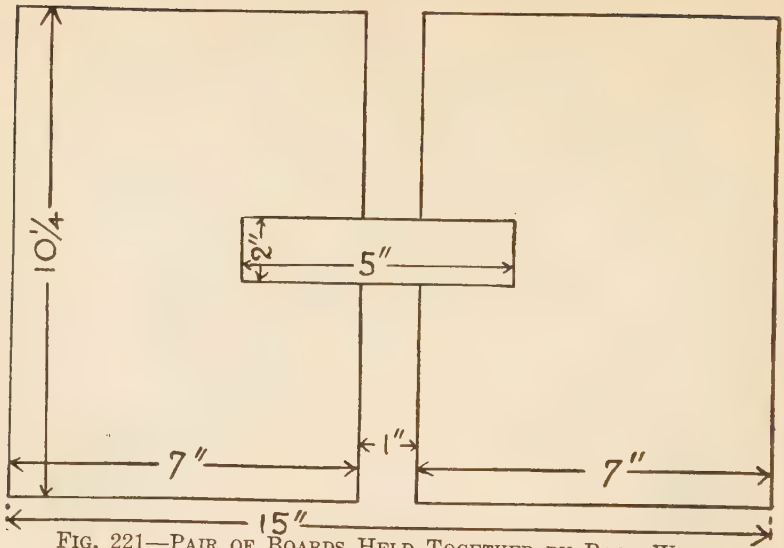


Fig. 221—Pair of Boards Held Together by Back Width Measuring Strip

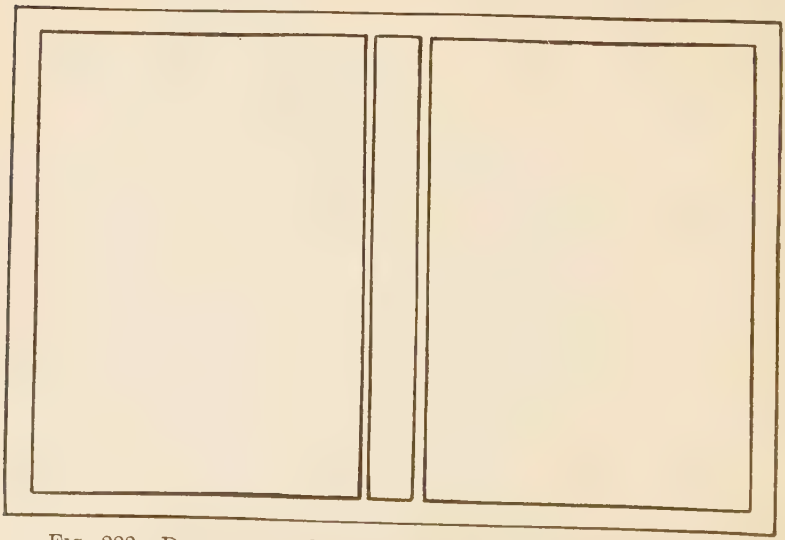


Fig. 222—Diagram of Cloth, Boards and Backlining Paper as They Appear when Cloth has Been Glued-off and Backlining Paper Laid on, Ready to Cut Corners of Cloth and Turn-in Cover

10. Clip off the four corners of cloth at outer corners of boards, and turn-in cloth over boards. Rub down turn-ins with folder and press entire cover between stiff pulp boards, if no wringer is available.

To the Student—Remember in turning-in cloth to turn-in *two long* edges first, then "nick-in" the corners, and turn two short edges in last, bringing all cloth snugly over board edges and rub down thoroughly.

Fig. 223—Finished Book with Magazine Front Cover Mounted as Onlay

Book covers must be gauged accurately to insure snug and proper fit-up of book to cover.

11. Case-in and press this book as you did the first one.
12. Carefully cut down the front paper cover of the magazine (you removed this first) using your straight edge and knife and mount it neatly on front cloth cover. Use glue, work neatly and press until dry. (Fig. 223.)

You have now completely bound a book following hand methods almost exclusively and should have obtained a considerable amount of technical knowledge and experience. In the following Lessons and Projects you will have an opportunity of using that experience.

TEST QUESTIONS

1. Explain trimming methods.
2. Why is a book glued before backing?
3. How should a book be backed?
4. What are headbands and how used?
5. Define "lining-up."
6. What is casing-in?
7. Give proper method of fitting cover to book.
8. How should old covers be prepared for use again?
9. Explain method of fitting and making new cover.
10. When would you use hard glue on back of book?

LESSON XXII

BUILDING A BOOK COMPLETE

To the Student—After completing a project that has led you into nearly all the commonly encountered problems of hand-binding, it will be well for you to continue along similar lines and put some of your training to the test by working out some practical problems by yourself.

In the Lessons and Projects up to this point you have learned the art of cutting and folding paper, inserting sections, gathering sections to make a book, the selection and cutting of materials, cover fitting and making, simple cover decoration, and somewhat about leathers, leather-cutting and working.

As you attempt these next three Lessons and Projects endeavor to work largely by yourself, referring to the instructions and definitions given in this textbook when in doubt as to the correct method of working. In each instance not fully explained and illustrated, you will find by going back to previous Lessons, that the same or similar processes were explained, illustrated and demonstrated.

Use your imagination and originality.

PROJECT 22

Memorandum Book

Materials Needed: 5 Sheets 19″ x 26″—12 pound or 16 pound quadrille ruled writing stock ($\frac{1}{8}$″ or $\frac{1}{16}$″ squares).
1 Sheet 19″ x 26″—28 pound or 32 pound buff or canary writing or ledger, plain finish.
$\frac{1}{2}$ Yard $\frac{3}{4}$″ gummed white muslin.
Sewing thread No. 12 and 18—2 or 3 cord.
Small quantity aniline dye.
Pieces of 400 pound red rope flexible board and No. 50 or 70 binders or chip board.

1 Piece skiver (any dark color, black preferred) to cut 14″ x 6″—smooth finish.
1 Piece artificial leather any color and small grain desired to cut 11″ x 8″.
Paste and glue.
Scrap paper.

Tools Needed: All the usual tools.

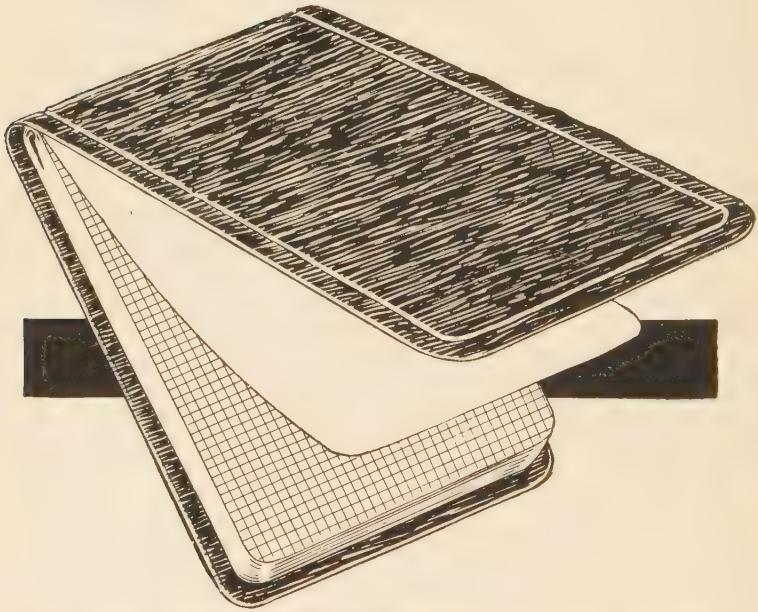


Fig. 224—View of Completed Memorandum Book, Oblong Style, Bound on the 4½″ Edge

You are to make two memorandum books each 4½″ x 6¼″ in size. One is to bind on the 4½″ edge, *oblong* shape; the other to bind on the 6¼″ edge, *upright* shape. When completed they should look like Figs. 224 and 249.

Your first step is to fold your quadrille-ruled paper into sections suitable for sewing or for inserting to make a stitched section. Proceed in following manner, being sure to follow all the rules for good bookmaking you have learned thus far:

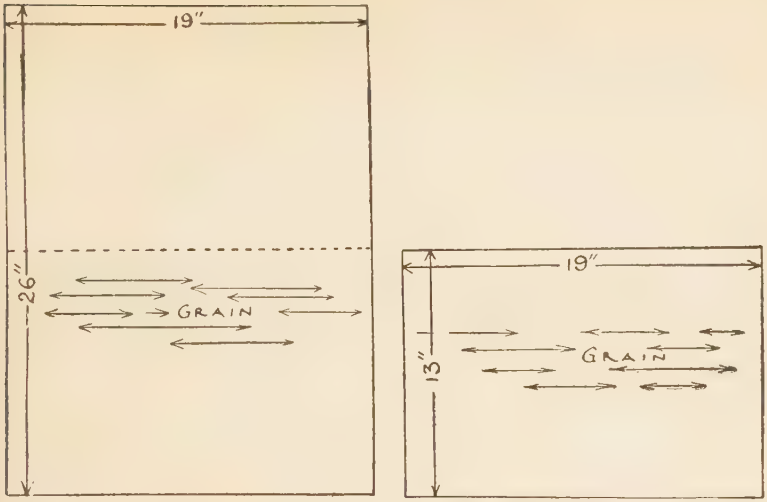


FIG. 225—DIAGRAM SHOWING SELECTION OF GRAIN AND CUTTING QUADRILLE-RULED STOCK FOR FOLDING

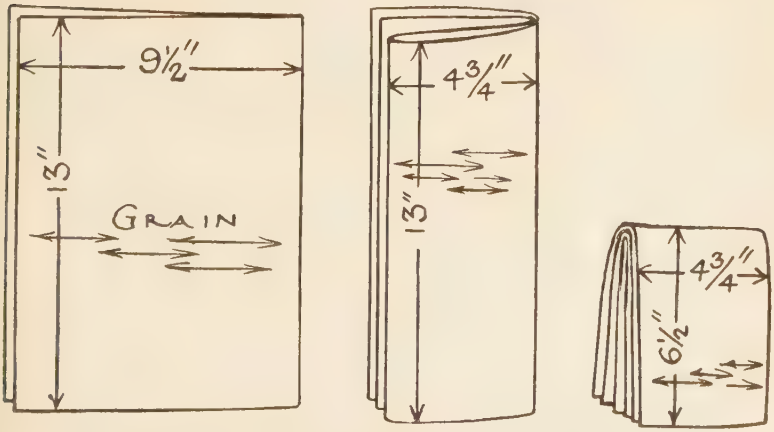


FIG. 226—DIAGRAM SHOWING METHOD OF FOLDING 13" X 19" SHEETS TO OBTAIN 16 PAGE SECTION 6½" X 3¾"

1. Determine the grain of your paper. Let us assume it is the 19″ way of sheet as it should be for the first book, which is the $6\frac{1}{4}$″ x $4\frac{1}{2}$″ *oblong* shape.
2. Cut *two* sheets of the 19″ x 26″ paper exactly in half, making *four* sheets 13″ x 19″, grain 19″ way.
3. Fold each 13″x19″sheet, in a new manner (see Fig. 226) and obtain a 16 page *oblong* section, which when folded is $6\frac{1}{2}$″ long and $4\frac{3}{4}$″ wide.

Two folds in a sheet made "over and over," both folds exactly like each other, are called PARALLEL folds (a third fold at a RIGHT ANGLE to first two makes a 16 page section).

4. Crease all folds *sharply;* insert each section into the others until you have 64 pages *all in one section.*

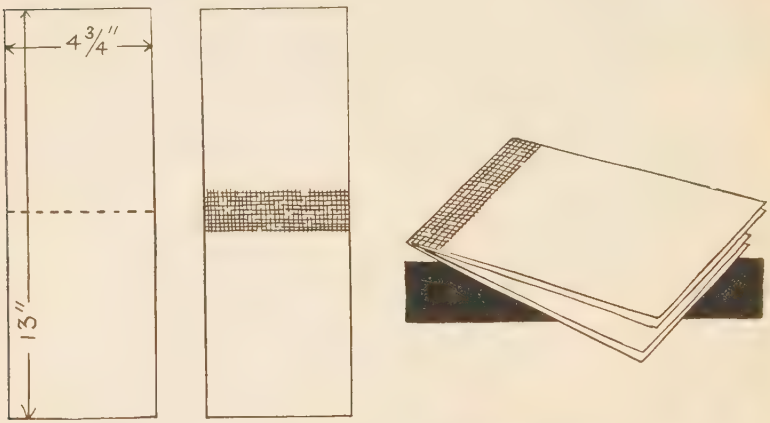


Fig. 227—Diagram of Cutting, Stripping with Muslin, Folding and Inserting End Lining Papers

5. From the sheet of 19″ x 26″ colored ledger or writing stock cut 2 pieces 13″ x $4\frac{3}{4}$″ each having grain $4\frac{3}{4}$″ way.
6. Find the center of one of these 13″x $4\frac{3}{4}$″sheets, mark it lightly in pencil, and affix a piece of gummed muslin $\frac{3}{4}$″ wide across the $4\frac{3}{4}$″ width *exactly* in the center of the 13″ dimension. (Fig. 227.)
7. Fold these two pieces across the $4\frac{3}{4}$″ way exactly in half, with the one having muslin so muslin is outside.

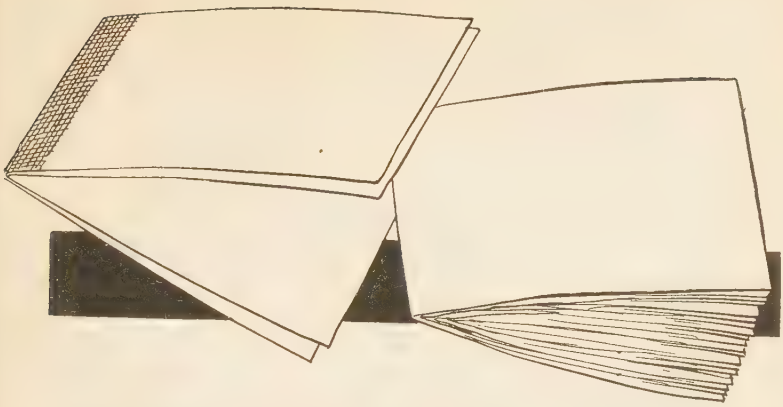


Fig. 228—Inserting a 64 Page Section into Prepared and Folded End Linings

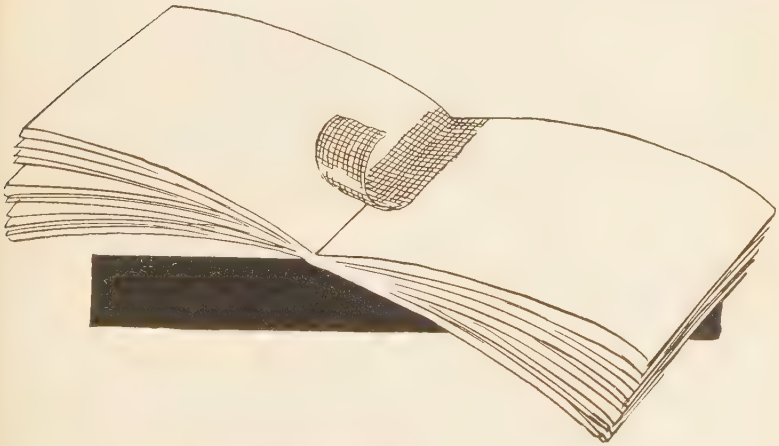


Fig. 229—Stripping a Muslin Joint in "Gutter" of Quadrille-ruled Signature

8. Open up the center fold of your 64 page section (composed of four sixteen page sections inserted) and strip a piece of gummed muslin across the $4\frac{3}{4}''$ width *centered on the fold.* Insert the two colored lining sheets into each other,

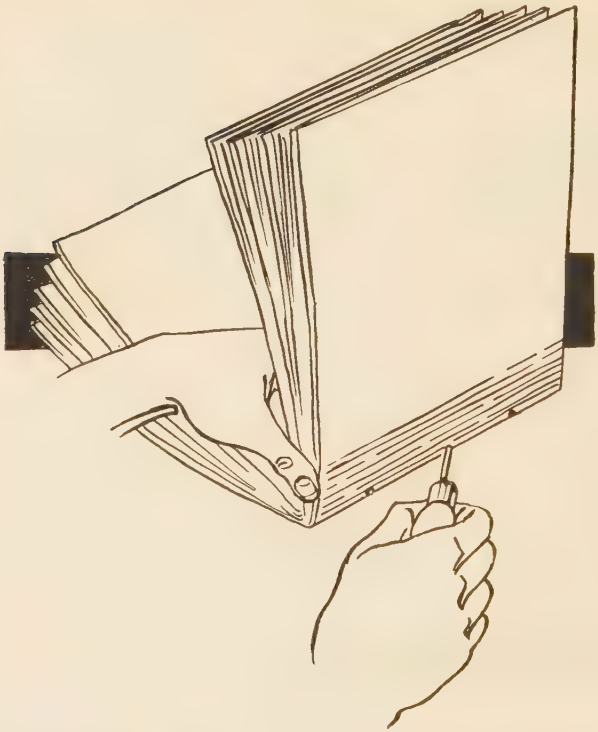


Fig. 230—Punching Holes with Awl for Stitching

muslin side out, and insert 64 page section into lining sheets.

9. Jog carefully to right hand edge (where the folds in the sections appear) and to the back fold of all sections and squeeze in press or hammer slightly with large flat faced hammer.

10. Using your awl, pierce three holes on back fold to receive stitching and, using your heaviest thread (No. 12 linen), stitch the booklet firmly. (Figs. 230 and 231.)

11. Draw thread taut and tie in *hard* knot on *inside*, tying knot *over* the long thread *inside* by bringing two ends on either side of *long* thread; cut off thread close to knot.
12. Placing a piece of waste board on either side of book, trim it to $4\frac{1}{2}''$ wide by $6\frac{1}{4}''$ long and round corner the two open edges. (Fig. 232.)

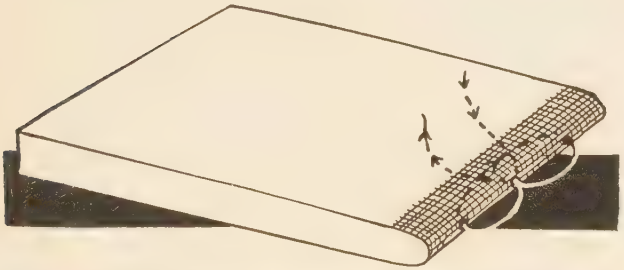


FIG. 231—DIAGRAM OF STITCHING ONE-SECTION BOOK

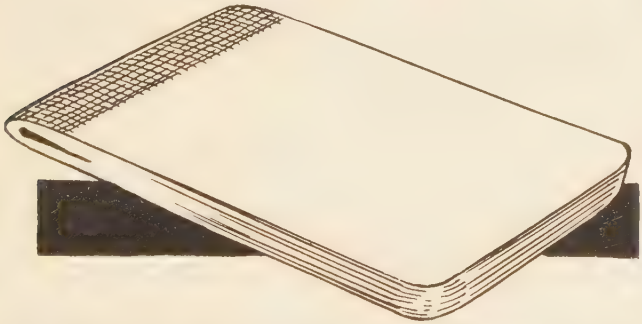


FIG. 232—BOOK STITCHED, TRIMMED AND CORNERS ROUNDED

Your first book is now ready for the cover. Lay it aside until you have brought the second book to the same stage.

A thin book may be made of several sections inserted to give one large section and SADDLE sewn or stitched, through and through the back fold or GUTTER.

Your second book is to be *upright* in shape and $4\frac{1}{2}''$ wide by $6\frac{1}{4}''$ high. We will proceed much in the manner of making the first with the exception that this is to be a *sewed, flat back* book and sections will not be inserted, but *gathered* together.

1. Cut three sheets of the 19″ x 20″ quadrille-ruled stock exactly in half, giving six sheets 13″ x 19″. For our purpose the grain should be the 13″ way. It probably is the 19″ way; if so, it will, of necessity, do for this book.
2. Fold these six sheets each with three *right angle* folds, thus obtaining in each a 16 page folded section $6\frac{1}{2}''$ long along the back fold and $4\frac{3}{4}''$ across the width.
3. *Gather* these together and jog to back and head edges. Crease with bone folder edges, while jogged neatly, to *set* the folds and give compact sections.

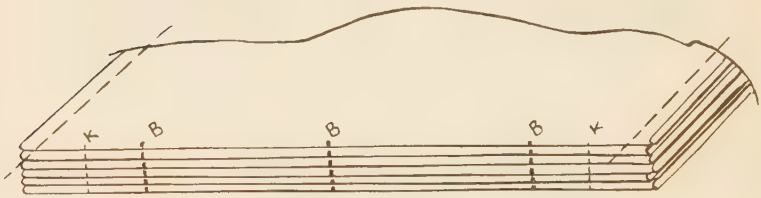


Fig. 233—Marking Diagram for Sawing-out Back of Sections for Sewing

4. *Mark-up* the back of book for hand sewing. As this is a small book $6\frac{1}{4}''$ long (after trimming) three bands and two kettle-stitches each $\frac{1}{2}''$ away from top and bottom stitches and ends of book will be sufficient. (Fig. 233.)
5. Jog up book, place boards either side, saw out for bands and kettle-stitches, and hand sew as you have been taught. Cut down book leaving 1″ bands on either side.
6. From the 19″ x 26″ colored ledger cut two linings each $9\frac{1}{2}''$ x $6\frac{1}{2}''$, grain $6\frac{1}{2}''$ way. Fold each of these *once* the $6\frac{1}{2}''$ way, giving a pair of folded linings $4\frac{3}{4}''$ x $6\frac{1}{2}''$.
7. Lay out your linings on a piece of scrap paper with $\frac{3}{16}''$ space between folded edges, lay another piece of scrap paper on over the top lining, also $\frac{3}{16}''$ from fold, paste-off linings and tip one to first and last sections of gathered book, tipping *along the* $6\frac{1}{2}''$ *folded edge*. Be sure to tip close to back fold of sections *under bands*. Press and dry.

8. Carefully trim bands to $\frac{3}{4}''$ length, *fray-out clear back to* edge of back fold of lining and *tip-down* bands to linings. Dry and hammer down bands lightly.
9. Trim your book $4\frac{1}{2}''$x$6\frac{1}{4}''$ in size, *upright*, and round corners of front edges.
10. Place book, still carefully jogged, all three trimmed edges smooth and square, between boards set *away* from back of book, place along edge of table, book projecting over edge, brick weight on top and *glue-up* back of book with flexible glue as if you intended to shape and round it. Leave in this position until dry.

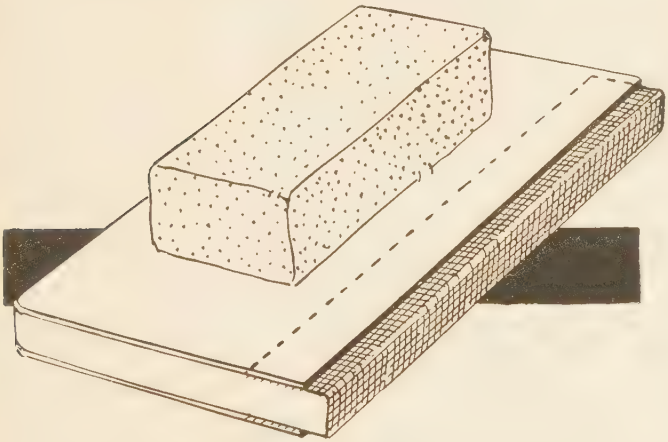


FIG. 234—BOOK LINED UP ON BACK WITH CRASH AND GLUE. USE BOARDS AND WEIGHT TO HOLD CRASH FIRM WHILE DRYING

11. Cut a piece of crash 6″ long by 2″ wide. While book is still in position on edge of table, glue up again, affix crash over back extending evenly on both sides, nearly to head and tail of book. Draw crash snugly over onto linings and slip it under protection boards to hold it in position while drying. Glue *over* crash with a *light* coating of flexible glue. (Fig. 234.)

When crash ONLY is used on backs as reinforcement it should be glued OVER after applying to book.

Both books are now ready for covers unless we decide to color the edges. We should in actual practice color edges as soon as trimmed, for they should not be colored after gluing and backing or after crash is applied. We can do it in this instance.

1. Select the color of your edge to match or harmonize in tone with color of your cover. Draw about a quarter of a cup of warm water (cold will do). Drop in a *pinch* of the dry aniline dye and stir briskly until dissolved. Test color of dye by dipping strip of paper, (same as that in book),into solution. Deepen color by adding more dye if necessary.

Fig. 235—Color Swab and Method of Squeezing Surplus Color out of Swab Before Using

2. Take a small piece of wood, about the size of a thin lead pencil, and two-thirds as long, wrap around one end a piece of absorbent gauze, soft cheese cloth or soft cotton goods, one inch in width, until you have a "swab-stick" with about $\frac{1}{8}$" thickness of material around the wood stick; tie at top and bottom with a piece of strong, thin linen thread.
3. Using the protection boards which you saved after cutting

edges and corners of books, jog carefully with book on front and end edges and set your book up on a brick laid on table, near edge, with another brick weight on top of top protection board. (Fig. 236.)

4. Dip your swab in cup containing dye and stir until swab is thoroughly saturated, squeeze swab free of surplus dye by revolving it pressed firmly against inner edge of cup,

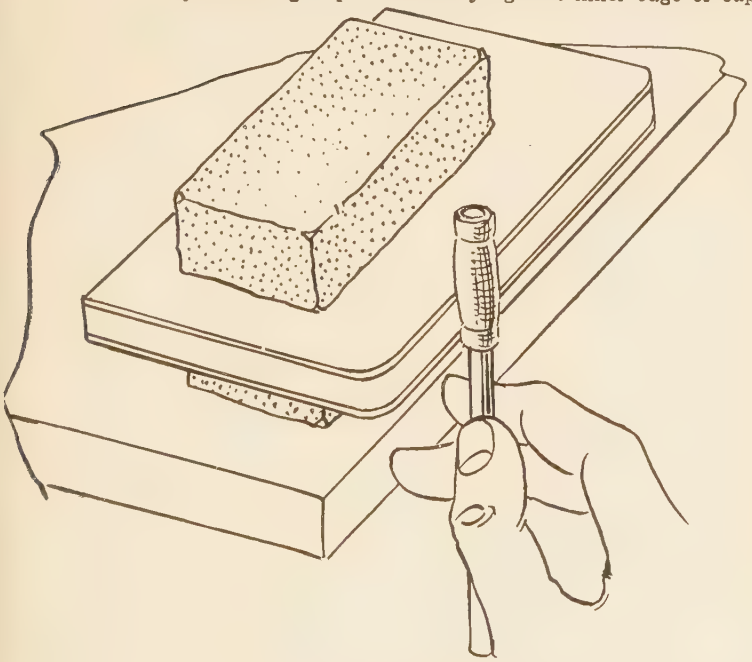


FIG. 236—METHOD OF APPLYING COLOR WITH SWAB

apply color to edges with *broad-side* of swab, moving swab lengthwise of edge. (Fig. 236.) Endeavor to color entire three edges with one dip of swab, by revolving it as you coat edge. Keep left hand on top brick weight to press book firmly together so color *will not* "run-in" on leaves of book. If edge does not look uniform in color repeat swab operation as soon as first coat is dry. (Dries rapidly.)

A small sponge may be used with equal results, but it must be *squeezed* free of color before applying and unless rubber glove is worn the dye will stain the fingers, discoloring them for several days.

Too much aniline color, because of liquid nature, will soak (or run-in) in on the leaves unless care is used.

Both books, after drying, are ready for covers.

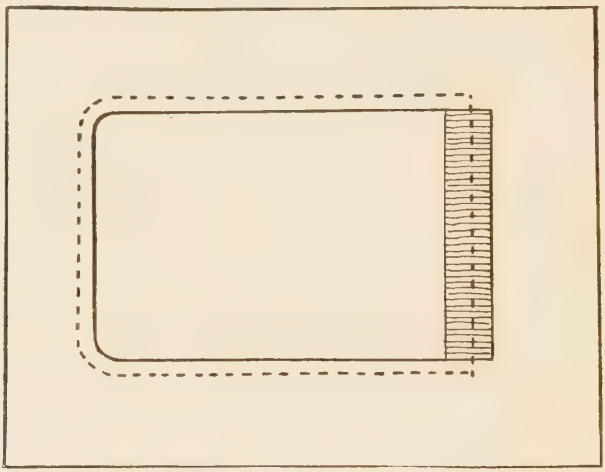


Fig. 237—Diagram of Cover Board Layout, Solid Lines Indicate Book Outline, Dotted Lines are Board Size and Shape

For the cover of the *oblong* book select the leather and for the other the artificial leather material. Make the leather cover with round corners over red rope *flexible* paper, with the leather *loose* from paper except at turn-ins.

To the Student—Making covers of leather with leather *loose* is a new operation for you. Follow instructions carefully and you should have no difficulty.

First, you must fit your boards and determine size of cover material.

1. Lay your book *flat* on a piece of tough paper. Mark around the four edges carefully following the book outline exactly. (Fig. 237.)

2. *Mark off* on this pattern $\frac{1}{4}''$ from back edge of book and $\frac{3}{32}''$ *outside* of three edges. Be sure your drawing is uniform and exact. Cut out this last pattern which makes your board size *shorter* than the *length* of book but allows for projection of board to give "squares" on three edges. Do this with T-square and straight edge so your pattern

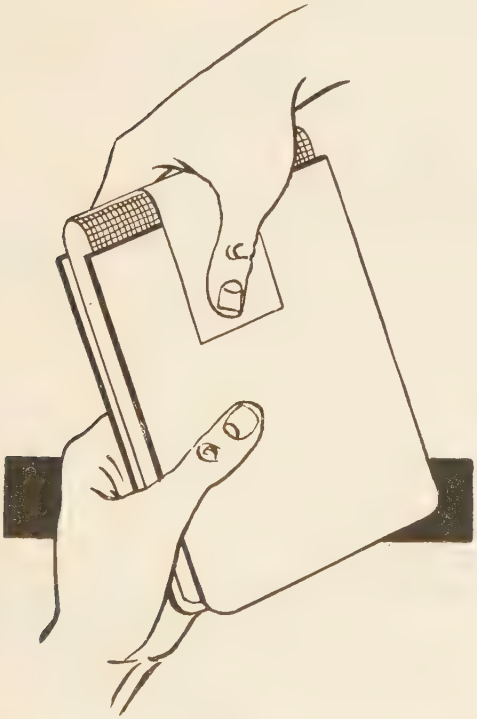


Fig. 238—Fitting Boards to Book and Determining Back Width Spacing

will be *accurate*.

3. Cut two pieces of 400 pound red flexible rope board to this pattern. Cut a strip of paper 1″ wide and 2″ long to use as a back space gauge.
4. Lay one piece of board flat on table, place book in position over board with squares correctly spaced, and lay second

board on top of book in same position. (Fig. 238.) Make certain these are accurately placed.

5. Glue-off the two ends of your 1″ x 2″ paper strip, pick up book carefully, holding boards and book firmly to prevent boards slipping out of position, and affix strip of paper to

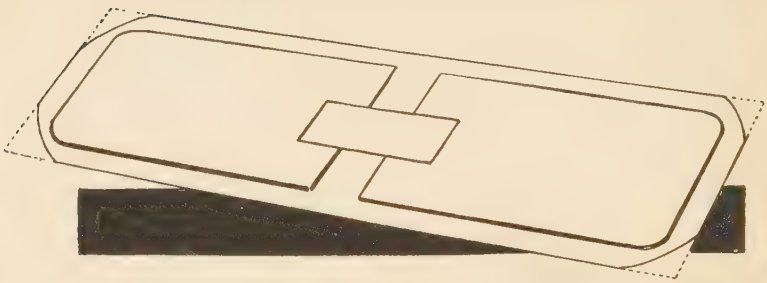


Fig. 239—Making Pattern for Cutting Leather for Cover

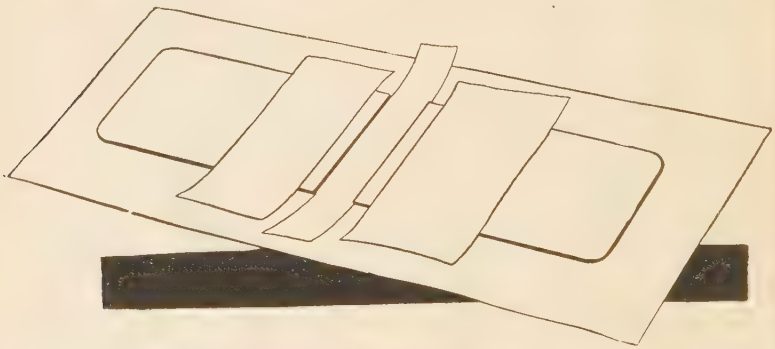


Fig. 240—Gluing-off one Narrow Edge of Boards for Tipping to Leather Cover

boards, fitted snugly over back of book. Lay on table under weight to dry.

6. Remove book, lay out cover boards on piece of tough paper and mark out your pattern for cutting leather. (Fig. 239.)
7. Select piece of board and cut pattern exactly like paper pattern.
8. Using board pattern cut out piece of leather, round off

corners and *pare*, if necessary (i.e., if leather is thick and would leave bulky turn-in).

9. Lay your prepared piece of leather *face* down on table.
10. Turn your pair of boards, held together by strip of paper, over and lay on a piece of scrap paper, *flat* on table, with paper strip *underneath* boards. (Fig. 240.)

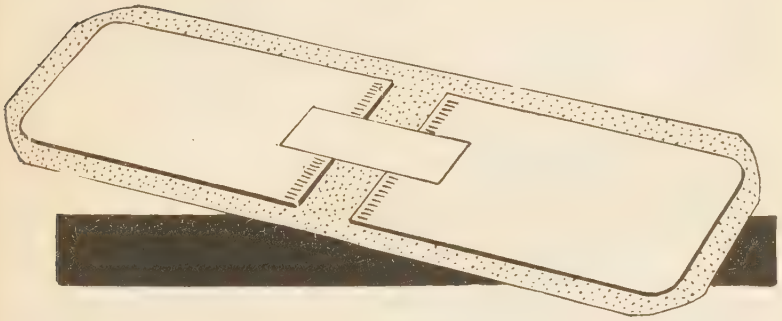


FIG. 241.—BOARDS, HELD TOGETHER BY BACK-WIDTH STRIP, TIPPED TO LEATHER COVER ALONG TWO BINDING EDGES OF BOARDS ONLY

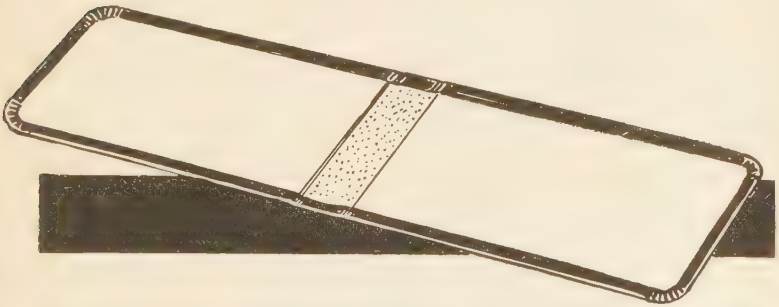


FIG. 242.—COMPLETELY MADE COVER WITH SIDES AND CORNERS TURNED-IN

11. Cut a piece of scrap paper to fit in between the two boards to keep glue from touching the strip holding boards together. Lay this in place between boards. Lay two pieces of scrap paper on boards $\frac{1}{4}''$ away from short binding edge and glue-off space on boards left open.
12. Remove paper pieces quickly, pick up cover boards with

gauge still holding them together, and lay down on leather piece ready to receive it. (Fig. 241.)

This affixes the boards to leather cover with proper gauge for backbone space. Press until dry.

13. Glue or paste-off the turn-ins all around cover and carefully turn-in cover, making the usual "picked-in" round corners. Draw material snug and uniformly all around. Lay sheet of board over entire cover, press until dry, remove gauge strip and your cover is made. (Fig. 242.)

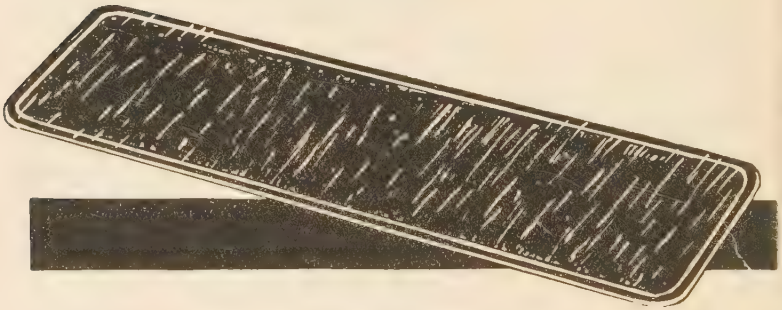


Fig. 243—Completed Cover, Creased All Around Edges

Loose covers are not glued all over but around turn-ins only, except for "tipping" boards at back edges.

14. Crease cover with single line iron *all around* four edges and corners.

Books and covers ready, let us case-in.

15. Glue-off one entire side of book, being careful to keep edges of book clean, and to coat end lining and muslin joint at back evenly and thoroughly, and lay book glued side down on cover, positioning it to secure proper squares. (Fig. 244.)

16. Quickly glue-off the other side of book, draw cover on and rub down along both sides near back. Press between two pulp boards under weight until dry. (Figs. 245-246.)

One-section, insert style books must be snugly fitted into back of cover and firmly rubbed down with hand to set back into cover.

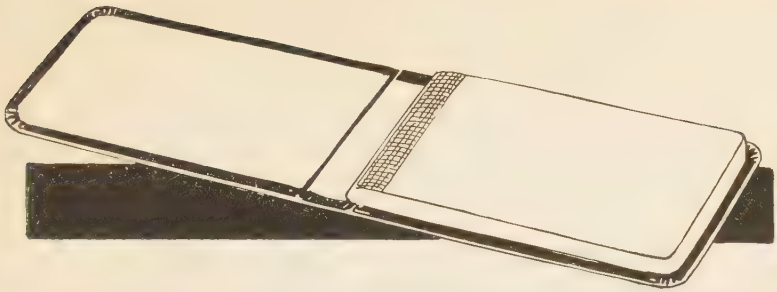


Fig. 244—Book with One End Paper Glued-off, Positioned on Cover

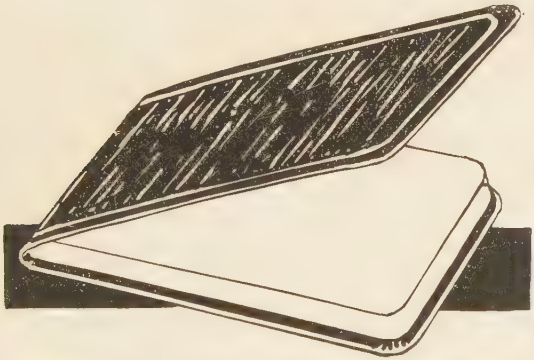


Fig. 245—Second End Paper Glued-off, Cover Being Brought Around Back Edge onto Glued End Paper

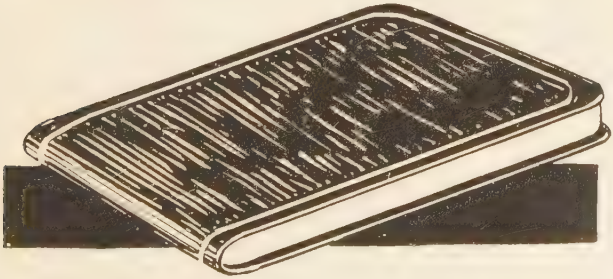


Fig. 246—Book Glued (or Cased) into Cover

Your second book is a *square back* affair and as artificial leather is to be covering material the cover should be made with boards solidly glued to cover material.

1. Fit your boards, using 400 pound red rope paper as you did on the leather cover just completed, with these exceptions: Allow $\frac{1}{8}$″ squares on three sides and *set-off* your boards $\frac{1}{4}$″ from back binding edge.
2. Use a paper strip to gauge the back space and hold cover

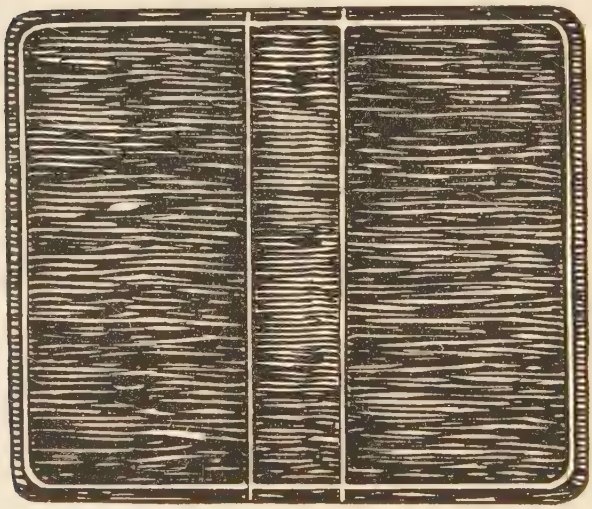


Fig. 247—Creasing Plan for Upright Cover

boards together until you have measured and cut cover material, glued it off, laid on your boards and turned in material.

3. Cut cover material, shape the corners, glue-off reverse side, laid flat on table meanwhile, lay on boards and turn in all around.
4. Crease the face of your cover with a single line creasing iron, as you did your leather cover, and add a vertical line close to and paralleling the two back edges of board. (Fig. 247.)
5. Glue-off the *back* edge of book and over onto the two

end-lining sheets $\frac{1}{4}''$ on either side. To accomplish this lay a strip of board on either side of book $\frac{1}{4}''$ away from binding edge and, as you glue-off back, let brush carry over sides as far as board edges.

6. Lay cover face down on table, place book in position, securing uniform squares, bring cover up over back of book and with cover *closed on book*, rub down cover along the back edge and on either side as far as edges of

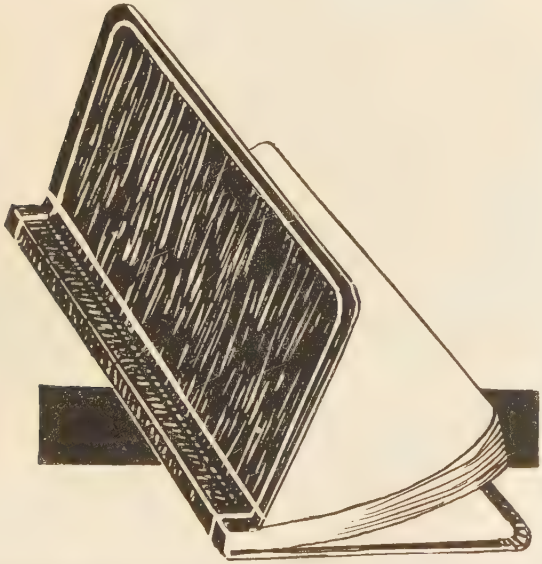


FIG. 248—UPRIGHT, SQUARE BACK BOOK, WITH BACK OF COVER ONLY GLUED TO BACK AND OVER $\frac{1}{4}''$ ON TWO END PAPERS

cover boards. (Fig. 248.) Place between smooth boards under weight to dry.

7. When dry, open up first front, then back cover and glue or paste-off end linings, close cover, press and dry again.

Square back books with set-off boards (to give free opening covers) **should have books first "hung-in" to cover backs with glue, then be glued or pasted down to end linings.**

To the Teacher—Variations in the operations taught in this Lesson may be easily arranged. Preliminary practice

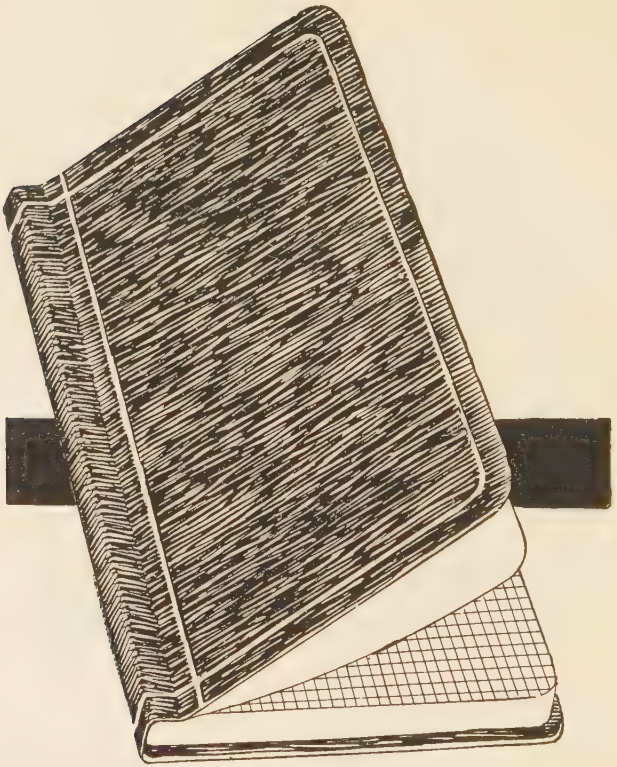


Fig. 249—Upright Book Finished, Showing Cover Opening Back to Joint of Cover Boards

work is never out of order. The proficiency of students must be your first consideration in allowing them to make progress in the course. The more individual instruction and practical demonstrations, the more rapid the progress of the class.

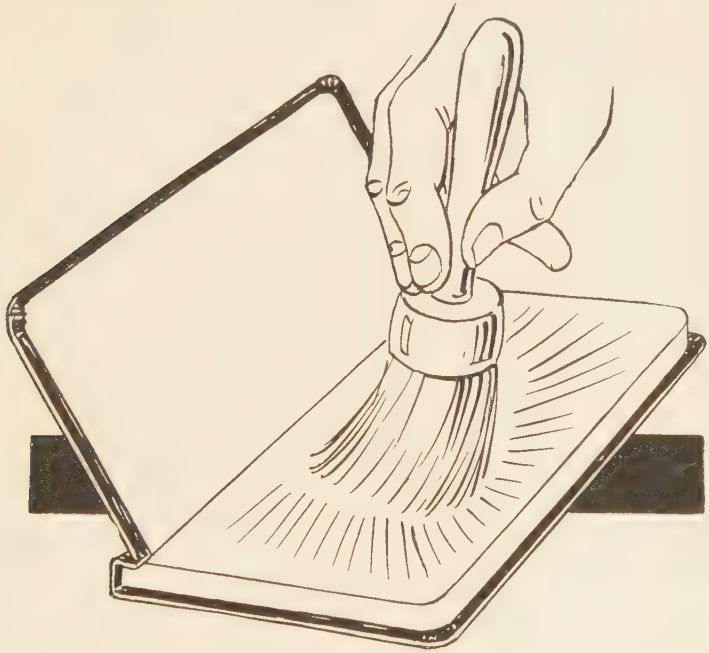


Fig. 250—Gluing or Pasting-off the End Papers After Book Has Been Glued into Back of Covers

TEST QUESTIONS

1. What is parallel folding? Right angle folds?
2. How would you make a simple reinforcement for the fold of an end sheet?
3. Should saddle sewn or stitched books be reinforced?
4. What stitch may be used on one section books?
5. What is quadrille-ruled paper? Ledger paper?
6. How should square back books be lined?

7. Explain coloring edges. What is aniline dye?
8. How can you spoil a book while coloring edges?
9. What are set-off boards? Why used?
10. Explain tight and loose cover making.
11. Why should a leather cover be made tight?
12. Explain hanging-in and pasting-up (or off).

LESSON XXIII

BUILDING A BOOK COMPLETE

To the Student—You have now performed most of the operations necessary to produce a finished book. Many of the more technical and difficult steps have been purposely omitted that you might take these up as you progress in later lessons. Notwithstanding these intended omissions, you have actually produced the simple type of bindings, a few rebindings, and produced several specialties such as albums, notebooks, loose leaf projects and the like. In this project you will endeavor to bind a book completely –largely depending upon your own ability to follow instructions.

To the Teacher—Endeavor to obtain from a nearby printer, binder or publishing house, several (sufficient to give each member of the class a complete book) sets of *flat printed* sheets for some juvenile title. Most publishers will gladly donate from a current edition enough flat sheets, illustrations, etc., to supply a class quite frequently as it is a prolific advertising medium.

The purpose of securing actual *printed sheets* is to train the student in handling real printed matter that requires careful handling, accurate planning of the binding and no spoilage (else the book is incomplete).

In case it is impossible to obtain flat printed sheets of an actual book, printed magazine sheets may be used, or blank *book* paper sheets.

It is preferable to have printed book sheets.

PROJECT 23

Binding a Printed Book Complete

Materials Needed:
- A set of printed sheets and inserts for a complete book (or blank paper).
- Paper for end linings (fly leaves or end papers).
- Backlining paper and a piece of Canton flannel 6″ x 8″.
- Headband material.
- Thread.
- A piece of buckram large enough for one cover.
- A pair of boards.
- Pulp color for edges.
- Muslin for joints on end papers.

Tools Needed:
- All the usual tools.
- A piece of coarse mesh ($\frac{1}{4}$″ or $\frac{1}{2}$″) wire screening.
- A stiff bristle scrub brush.

To the Student—We intend to bind up this set of sheets in a strong, durable binding suitable for the school library.

1. Examine the printed text sheets supplied and observe the page numerals (*or folios*). You will find that they are not placed in sequence, close together, but apparently scattered all over the printed sheet. This method of arrangement is called *imposition*.

Imposition is the method of arranging printed pages on a large sheet to enable the binder to fold each sheet into 4, 8, 16, 32, or 64 page sections, as desired, by means of machines or hand folding.

To the Teacher—At this point it will be advisable to explain the difference between folding:

One eight page section,
One sixteen page section,
Two sixteen page sections on a sheet,
One thirty-two page section,
Two thirty-two page sections on a sheet,
Four sixteen page sections on a sheet.

2. If you find the printed sheet has sixteen pages printed on each side and the paper is fairly thick and heavy, you may be reasonably certain that the printer intended this sheet to be cut in half and each half folded by itself.

3. You learned in an early lesson that the number of pages a section or signature could contain depended largely upon the thickness (bulk) and hardness (body) of the paper. Sections of sixteen pages are usually printed two or four *on* a sheet.

When two sixteen page sections are printed on one sheet the arrangement for folding is usually termed "double-sixteen."

4. Two sixteens on a sheet will fit a "double-sixteen" folding machine, often called a "drop-roll folder" because of an automatic roller which propels the sheet into the folder when inserted by hand or automatic feeding device.

5. Four sixteens on a sheet are intended for "quadruple" folding machines, so called because they take the full sheet, automatically cut it apart into four sixteen page sections and deliver each section completely folded by itself.

Sixteen page or double sixteen page signature folding is accomplished by making three right angled folds in each sixteen page section.

6. Examine the flat printed sheets again. If they are "imposed" for single 16 folding they will look like Fig. 253. The figures in the diagram indicate the page numbers, those in the circles denoting the page numbers or folios on the "outer" side of sheet, backing-up those folios shown without circles, on the "inside" of sheet.

7. Naturally there will be but one section numbered from 1 to 16, perhaps no section will be so folioed, but each section that contains 16 pages can be determined by finding the "low-folio," i. e., the smallest numeral on the sheet, and the "high-folio" or largest numeral visible on either side.

8. Now comes the difficult part. We must determine whether the sheet is intended for single or double-16 folding, for quadruple (4) sixteens, or for single or double thirty-two page sections.

A sheet with but 16 pages printed thereon, 8 on one side and 8 on reverse, must be a single sixteen (or two 8 page sections, which is unusual).

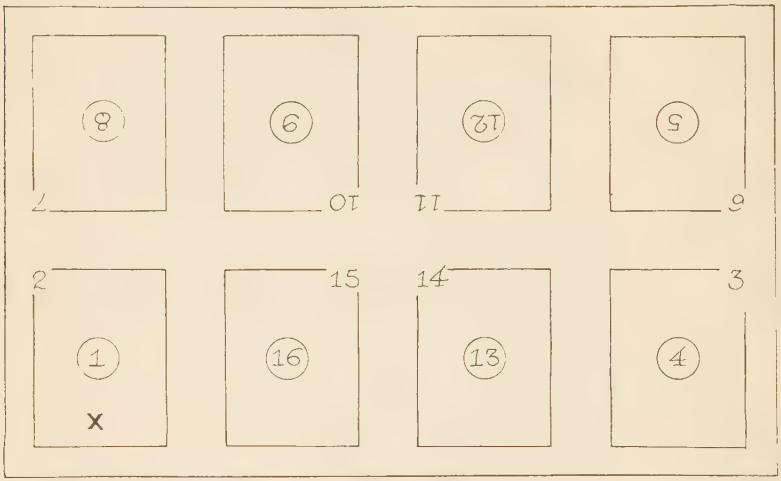


Fig. 253—Single-16 Sheet—Circled Folios are on Reverse Side of Sheet. X Marks Low Folio.

9. See if the sheet has 16 pages or 32 pages printed, counting both sides of sheet. If 32 pages are printed (16 pages on each side) it may be a double-16 or a single-32 sheet. If a double-16 sheet it will look like two sets of Fig. 253 and the folios would look like Fig. 254.

A double-16 sheet has two 16 page signatures printed so they may be cut apart and folded separately by hand.

10. The folios on the double-16 sheet may be in sequence, i. e., one 16 may follow immediately after the other 16 or may be sixteen pages from another part of the book. In either

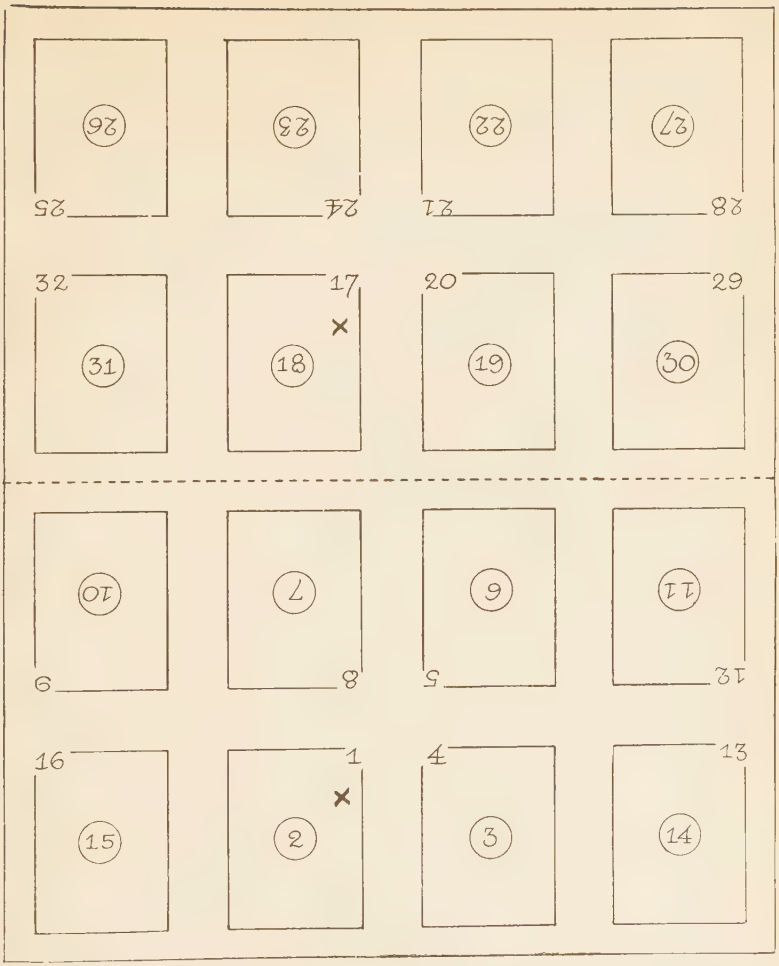


Fig. 254—Double-16 Sheet—Circled Folios are on Reverse Side of Sheet. X Marks Low Folio. For Hand Folding Sheet Should First be Cut Apart at Dotted Line, Obtaining Two *Square* Single-16's.

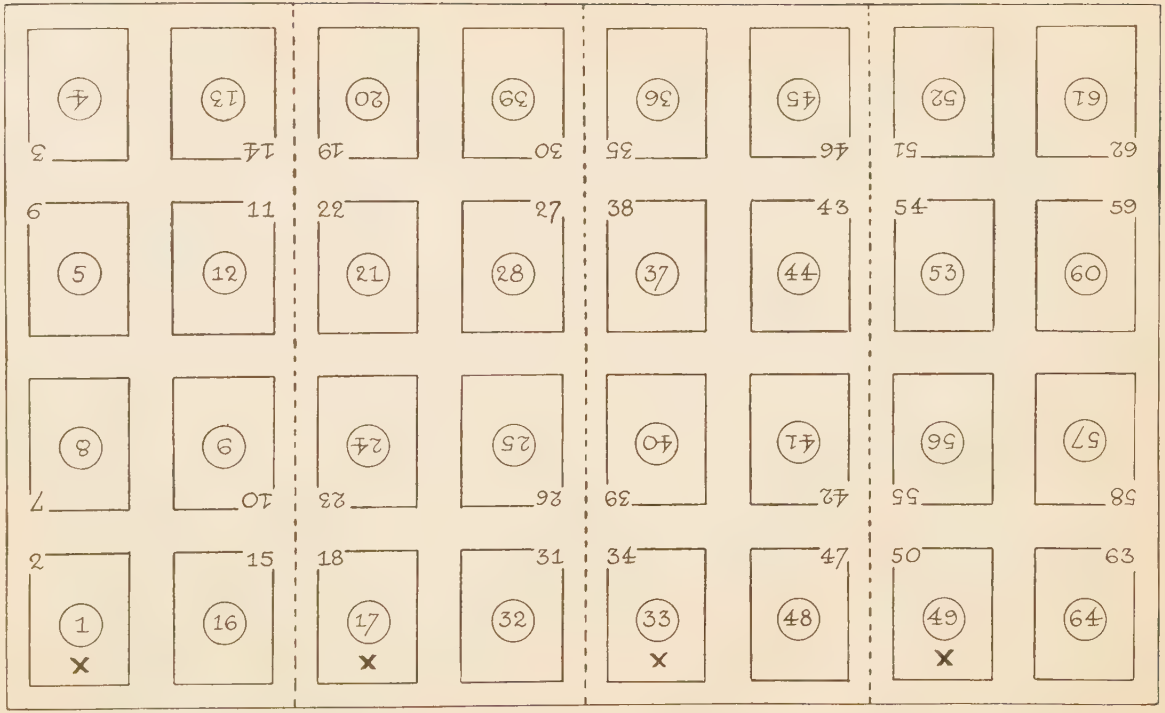


Fig. 255--Quadruple-16 Sheet—Circled Folios are on Reverse Side. X Marks Low Folios. For Hand Folding Sheet Should First be Cut Apart at Dotted Lines to Obtain Four *Long* Single-16's.

case you may determine the "low" and "high" folios and thus prepare for folding by cutting large sheet in half.

11. If the sheet has four sixteens printed thereon it is probably a "quadruple" sheet and will look like Fig. 255. A quadruple sheet must be cut into four parts for hand folding. A quadruple sheet will have four sets of sixteen page folios and the "high" and "low" folios of each sixteen will be found along *one long* edge.

A quadruple sheet consists of four 16 page sections imposed to fold by means of TWO PARALLEL and ONE RIGHT ANGLE folds, the two parallel folds made FIRST and right angle fold LAST.

To the Teacher –The student will require your assistance in determining imposition and in locating "low" and "high" folios. Demonstrate on several sets of printed sheets the difference between single-16, double-16 and quadruple-16 sheets. Should the printed sheets contain single or double thirty-two page sections additional instruction will be required.

12. It is quite possible that a single or double thirty-two page sheet may be encountered. A single-32 page sheet (i. e., one having 32 pages to be folded into *one* thirty-two page section) will have folios like Fig. 256.

A single-32 page sheet has 16 pages printed on each side and folios imposed to fold entire sheet into one section.

13. If a double-32 sheet is encountered it will be found to have *two* single-32 sections imposed on same sheet (similar to a double-16 sheet already explained). A double-32 sheet must be cut apart in center for hand folding.

Now that you have learned the different types of sections and impositions that may be met with in handling printed book sheets, we will proceed:

To the Student—Before attempting to fold your printed sheets study carefully folding diagrams, Figs. 251, 252 and 257.

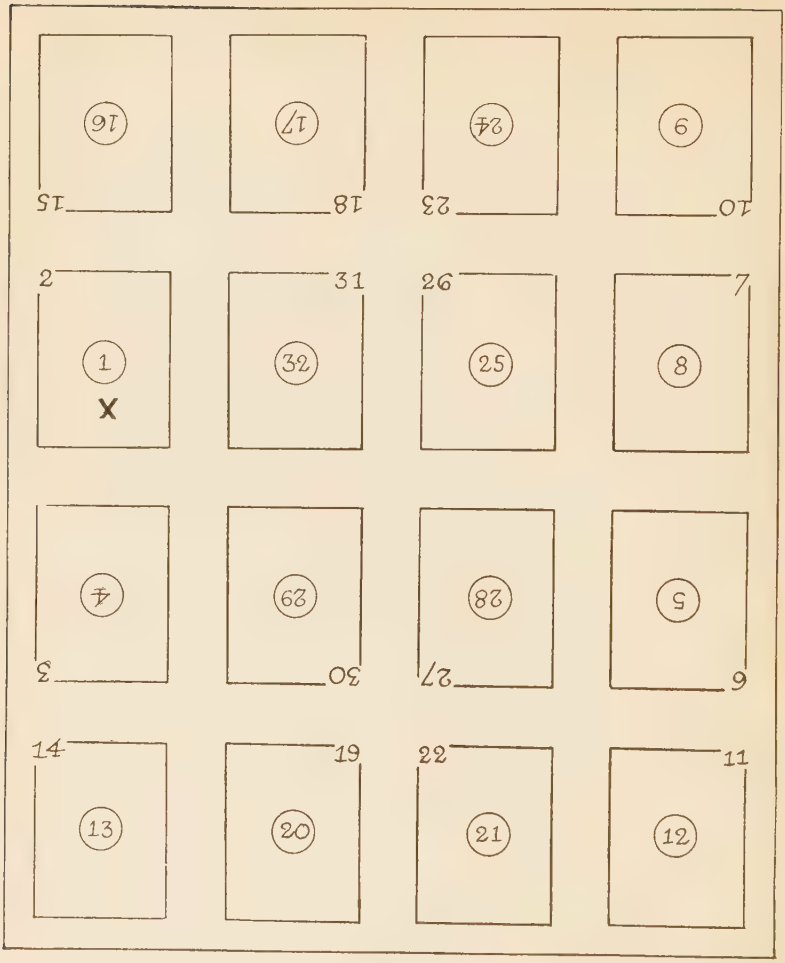


Fig. 256—Single-32 Page Sheet, X Marks Low Folio. This Sheet is Hand Folded Complete into One 32-Page Section.

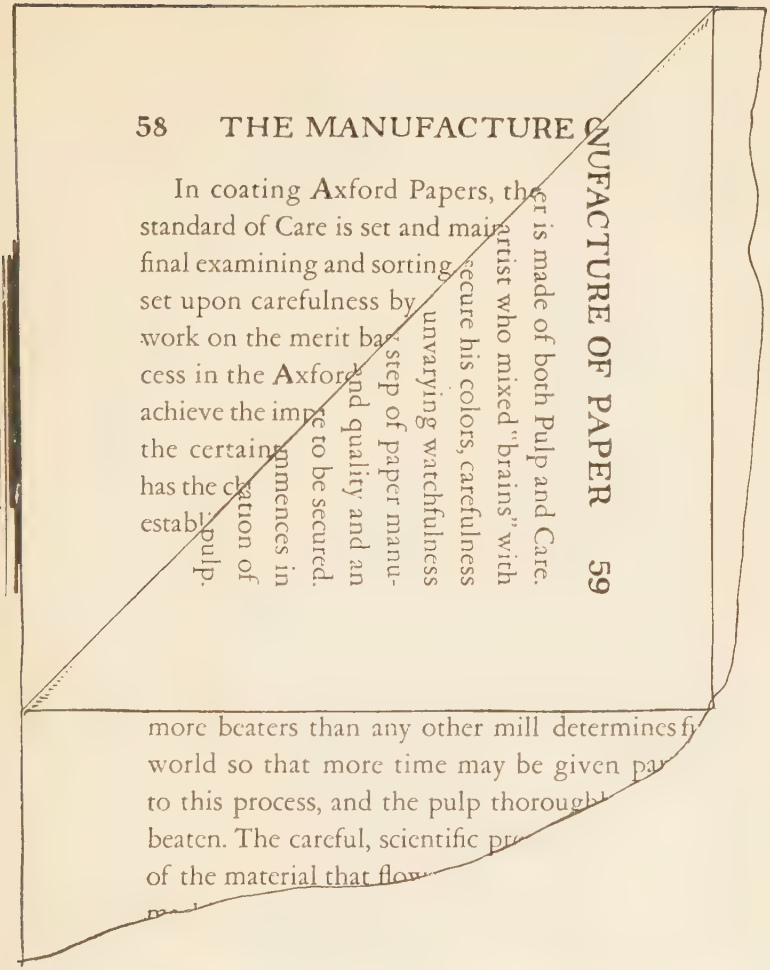


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FIG. 258—ALIGNMENT OF HEADLINES AND REGISTER OF PRINTED PAGES, ONE TO THE OTHER

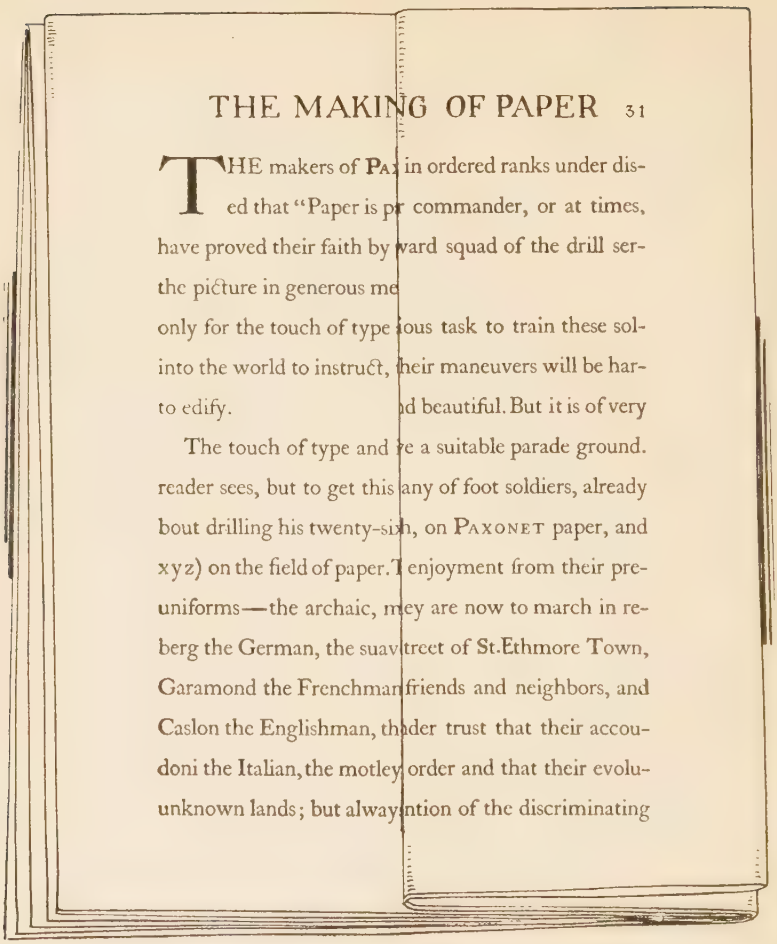
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FIG. 259—SIGNATURE OPENED AT CENTER AND HALF FOLDED BACK TO SHOW ALIGNMENT AND REGISTER

14. Determine to which imposition the printed sheets given you have been laid out by the printer. If single-16's or single-32's, no cutting apart is necessary; if double-16's, double-32's or quadruple-16's, carefully locate low and high folios and cut apart each sheet with bone folder. To do this:
15. Fold each sheet exactly in half (if double-16 or double-32) or in quarters, if quadruple, and *slit* apart with folder.
16. Lay each sheet in sequence, one above the other low folio *face downward*, under your *left* hand. (See Fig. 7, Page 116.)
17. Proceed to fold each sheet into a 16 or 32 page section as you learned in Lesson V, Project 3.

A sixteen page section is folded with three right angle folds, a quadruple section with two parallel and one right angle fold; and a thirty-two page section with four right angle folds.

18. Be certain to *slit* the head folds on each section to get an accurate fold.
19. In folding printed sections "register" and "alignment" of the printed pages must be considered. Each printed page should be exactly in line with its *facing* and *backing* pages, see Figs. 258, 259.
20. Having folded all of the sections; assemble (gather) your book with signatures in sequence, check the completeness and accuracy of sections (collate) and lay book under weight.

Printed matter must always be folded so that each printed page aligns with the page opposite and the backing page, and entire section should uniformly align throughout.

21. The next step is to ascertain if there are any illustrations (inserts) to be tipped (pasted) into book. Illustrations, if any, will usually come printed on a large sheet; all inserts on the sheet together. If you find inserts (and you can check whether there should be inserts by looking for a "List of Illustrations" in the fore part of book) they will look like Fig. 260 on the sheet.
22. Cut apart your inserts, first carefully measuring the size of your folded signature and determine how to cut the inserts in order to obtain proper margins to fit type page on signature. (See Figs. 261, 263–266.)

Face-up Upright
Face-up Upright

Face-down Oblong
Face-up Oblong

Fig. 260—Form of Four Inserts—Three Facing Up, One Facing Down—Dotted Lines Indicate Cutting Lines. X Marks Waste to be Cut Off.

FIG. 265—FACE-DOWN OBLONG INSERT PASTED

FIG. 266—FACE-UP OBLONG INSERT PASTED

HARMONIOUS INSERT POSITIONS

25. Lay out your inserts for pasting, in the order they appear in book, last one in book on bottom, first one on top, "fan-out" ready for applying paste, and "paste-off" as you did on end-lining sheets.

Paste is applied to the BACK of the insert leaf about $\frac{3}{16}$" wide along the entire pasting edge. In laying out for applying paste inserts are laid face down. Inserts coming between signatures are pasted to the LAST page of the signature, PRECEDING. FACE DOWN inserts are usually pasted on the face of insert. Signature folds must be CUT to allow pasting inserts INSIDE folded sections.

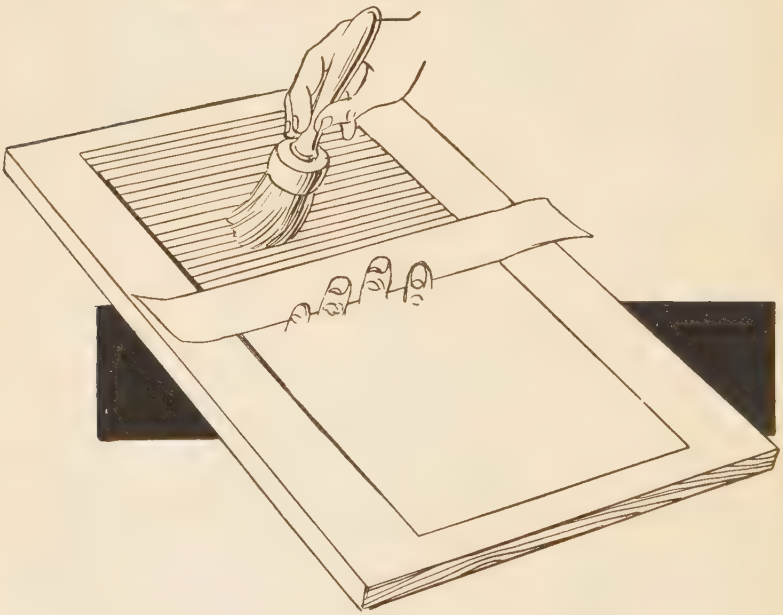

Fig. 267—Paste-off Inserts to Proper Depth

26. Taking your gathered book, make a pencil list of the pages the inserts are to face in the sequence laid out on board, find the proper place in each section and tip in the inserts.

27. Regather your book and place under weight.
28. Make a pair of cloth jointed end-linings (as you learned before) and when dry lay on book front and back.
29. Mark up back for proper number of cords and kettle-stitches and saw out for sewing.
30. Set up sewing frame, arrange cords and sew book. Cut book down, allowing cord ends for "fraying-out" and tipping. Be careful to sew-on your linings firmly.
31. Fray-out and tip down bands; press until dry; hammer book gently to reduce "swell" along back or binding edge.
32. Jog book carefully to back and head. Measure and mark

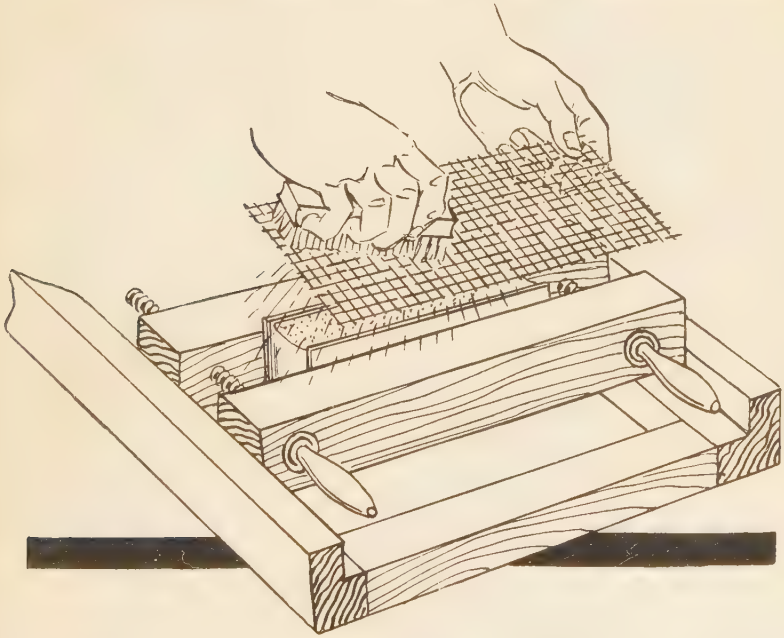

FIG. 268—SPRINKLING BOOK EDGES

proper trimming dimensions (be careful of margins for a book that has inserts).

33. Trim book on three edges.
34. Carefully glue-off back of book while it is clamped in finishers press or job backer.

35. When back is dry, set up book in press or backer and sprinkle the three edges with pulp color. To do this:
36. Mix a small quantity of dry pulp (or jelly pulp) with warm water until it has the consistency of thick cream; dip your scrub-brush into color (which you have mixed on a cardboard or metal slab), take the piece of coarse-mesh screen in your left hand, the brush in your right; hold screen horizontally over book edges and rub the brush containing color briskly over the wire screen. (See Fig. 268.)

Repeat the process on remaining edges. It will be advisable to have a piece of firm board on either side of book to prevent book opening up along edges.

37. Round and back your book, raising joints to fit the board you intend using in cover.
38. Affix headbands.
39. Cut a piece of Canton flannel as if it were a piece of crash and apply it with glue as you have been taught to do with crash. Rub it down well over entire back. Do not put a paper on over it.
40. Measure book for boards; cut and fit boards; measure back width as before, affixing strip of paper to get right back space.
41. Round the four corners of your boards.
42. Cut a piece of buckram proper size with which to make cover and shape the corners for "Library-style" round corners.
43. Glue off buckram, lay on boards; remove gauging strip, cut and lay in backlining paper for cover; turn-in cover with round corners, Library-style.
44. Paste-off book and case-in cover; press carefully in between metal edged boards.

In casing in Canton flannel lined books great care must be exercised to paste UNDER and OVER flannel and to keep it smooth under end papers.

45. When book is dry, remove from press, open up carefully, inspect, clean and letter title neatly on backedge in white ink or design and affix strong labels to front cover and backedge. Figs. 269–270.

To the Student—Review this lesson and project thoroughly and go back over previous lessons to refresh your memory on

all the operations in which you were allowed to exercise your own ability.

In pressing books lined with Canton flannel care must be taken not to press too firmly along the back, else end papers will stick together. If left loose in press the flannel will "draw" and wrinkle.

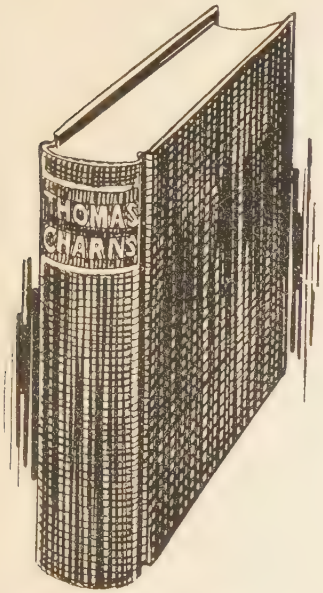

Fig. 269—Book Titled on Backbone with Ink

Fig. 270—Book Titled on Front Cover and Backbone with Labels.

TEST QUESTIONS

1. What is imposition?
2. Explain difference in folding operations between single-16, double-16, quadruple-16 and single-32 sections.
3. What is very essential in folding printed sheets?
4. How are inserts prepared for pasting?
5. How do margins differ on inserts?
6. In what way does pasting of inserts vary?

7. How should captions or legends under illustrations be positioned for reading?
8. Explain how to paste an insert as a frontispiece; in the center of a section; between two successive sections.
9. What is object of using Canton flannel for lining on book—how does it act?
10. How is edge sprinkling accomplished?

LESSON XXIV

BUILDING A BOOK COMPLETE

To the Student—It frequently becomes necessary to bind, in permanent form, single leaves or single fold sections (4 page sections). These cannot be sewn in the usual manner for the reason that a single leaf has no fold at the back to receive and hold the sewing thread. Neither has a single fold four-page section sufficient strength to withstand the cutting strain of sewing thread. In order to sew a book composed of single leaves or very thin sections a different method must be employed.

This method is termed whip-stitching or overcast-sewing.

Single leaves may not be sewn into book form by either the "all-along" or "two-along" method.

PROJECT 24

Binding a Whip-Stitched or Overcast Sewn Book

Materials Needed: Quantity of magazine sections (or newspapers).
Sewing tapes and thread.
End paper material.
Artificial leather for cover.
Red flexible board.

Tools Needed: All the usual tools.

To the Teacher—Old magazines with covers and wires removed may be employed by trimming-off the back binding edge to give single leaves. Without much trouble sufficient material can be assembled by inviting individuals to send in materials to be bound *free*.

1. Select material in loose single leaf form bulking about three quarters of an inch in thickness.
2. Jog up carefully to back and head.
3. Cut two pieces of strong white (or light tinted cover) paper exactly the same size as material to be sewn, *with grain parallel to binding edge*. Lay one of these on top and bottom of pile.
4. Jog again and while pile is held down snugly over edge of table, glue-up back with thin, even coating of glue.

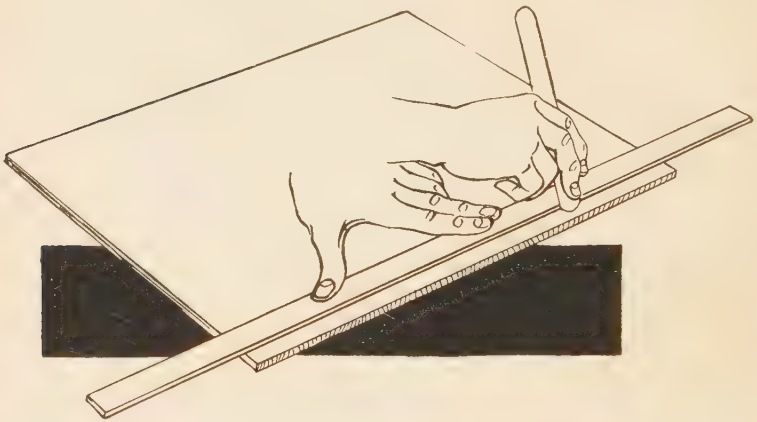

Fig. 271 —Creasing Sections with Folder

5. When glue has set, gently separate the "block" of paper into sections of about 16 pages on thick papers or 32 pages on medium and thin papers. Leave the extra leaves front and back with the two end sections.
6. Carefully crease each section *on both sides* one-quarter inch away from glued edge by using edge of bone folder run *firmly* along a straight edge laid lengthwise on section. Fig. 271. This will make book open easily.
7. Set up your "stabbing" press, if one is available, to pierce holes about three quarters of an inch apart and $\frac{3}{16}$" from glued edge of sections. Fig. 272.

If no stabbing machine is available mark off stab holes on a piece of board same size as book sections, lay on each section flush with glued edge and top of section and stab with your awl.

8. Assemble and jog sections.
9. Set up your sewing frame but instead of cords use flat cotton tapes $\frac{1}{2}''$ to $\frac{3}{4}''$ wide.

The number of tapes may vary from two to four depending on length of back. Position tapes so they each come *between* two stab holes and are equidistant up and down the back. (See Fig. 274.)

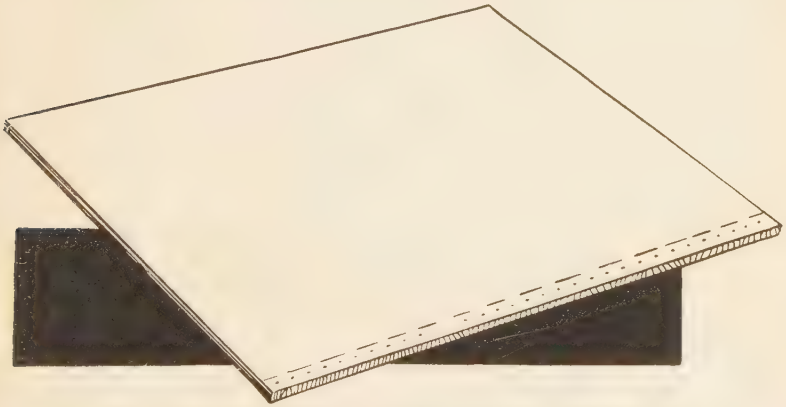

Fig. 272—Stabbing Sections—Holes in All Sections Must be Uniformly Spaced Apart and in line

10. You did not saw out these sections, although it may be done if very heavy thread is used or cords in place of tapes.
11. Start your needle *up* through the last right hand stab hole, leaving enough to tie with when you return after sewing-on the second section. Bring the needle from the top of the section around and enter at second stab hole from the *bottom upward* again; continue until you reach the right side of the first tape, cross the thread *over outside* the tape; proceed to the next tape and so along until you reach the last stab hole at the left. (Figs. 273–274.)

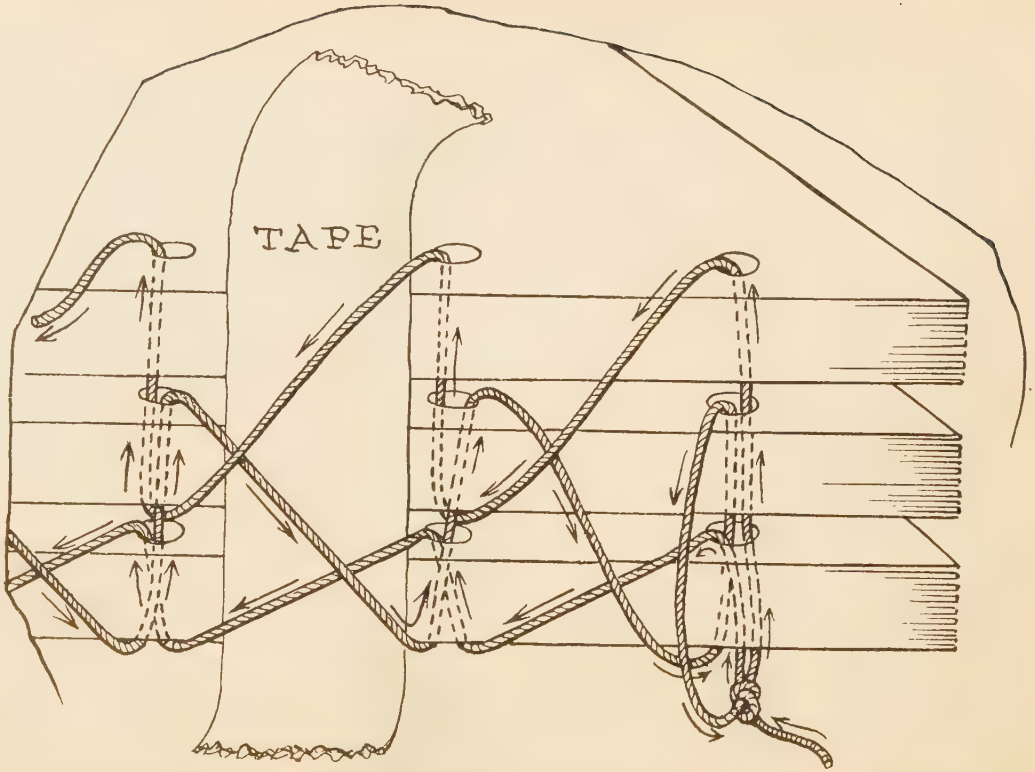

Fig. 273—Enlarged View of Overcast Method in Hand Sewing. Note that Thread, After "Overcasting" First Section, is Passed *across backs* and also *through* Two Sections at Each Stroke of Needle. See Note on Page 375

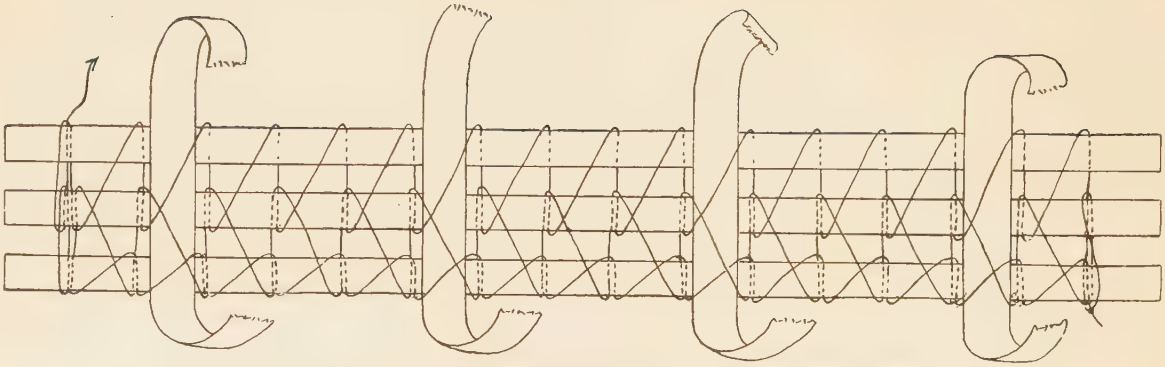

Fig. 274—Diagram of Threads in Whip (or Overcast) Stitching

The several sections are shown apart from each other in order that the method of carrying thread *through, across the back* and finally *through* and *across the back* of two sections, thus sewing book into one complete unit.

Special Note—Authorities differ on the method of carrying thread. Some prefer to carry needle *up* through sections, others *downward*. Sew the way that is most handy to you. The placing of the stitches is the most important step.

12. Lay on the second section; bring needle upward through the last left hand stab hole and make a complete loop through both sections. Proceed along to the right, through each stab hole, stitching *upward* each stroke, and criss-crossing back of both sections, each time carrying needle outside from *top* of second section to bottom of first section, then upward through *first* and second section. Criss-

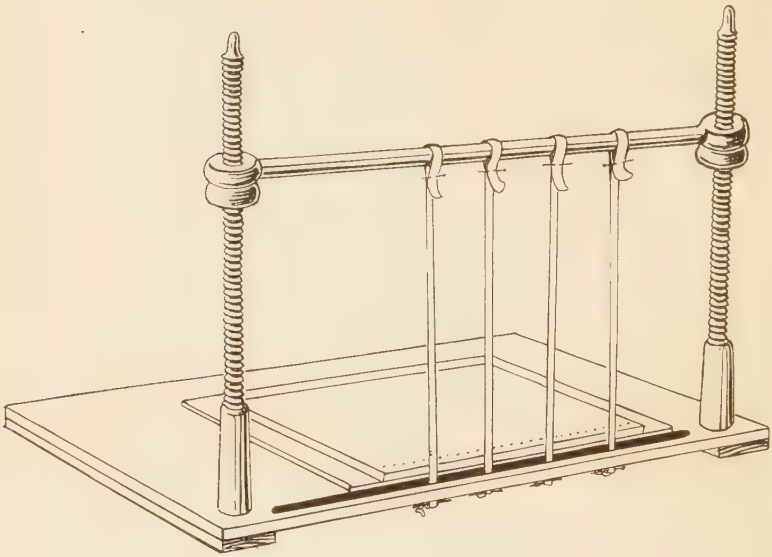

Fig. 275—Sewing Frame Set up with Four Tapes

cross over tapes. When you reach last right hand stab hole make a loop stitch, tie on to end of thread and, placing third section, repeat stitching. This time sew the *third section to the second.* Sew the fourth section to the third and so on until book is completely stitched. Tie a knot at conclusion of stitching. (See Fig. 273.)

Whip or overcast stitching is a cross stitch, through and through each section, sewing each succeeding section to the preceding.

13. Remove book from frame, allowing sufficient length to tapes (about $1\frac{1}{4}''$) to tip down on either side of book.

14. Prepare a pair of cloth-jointed mounted end papers and when dry, *glue solidly* to front and back strong end leaf (Fig. 276), and press until dry.
15. Carefully tip down tapes on either side.
16. Glue-off back of book with flexible glue.
17. Measure for trim and trim three sides.
18. Gently shape and back book with *very little* rounding and *very small* joints.

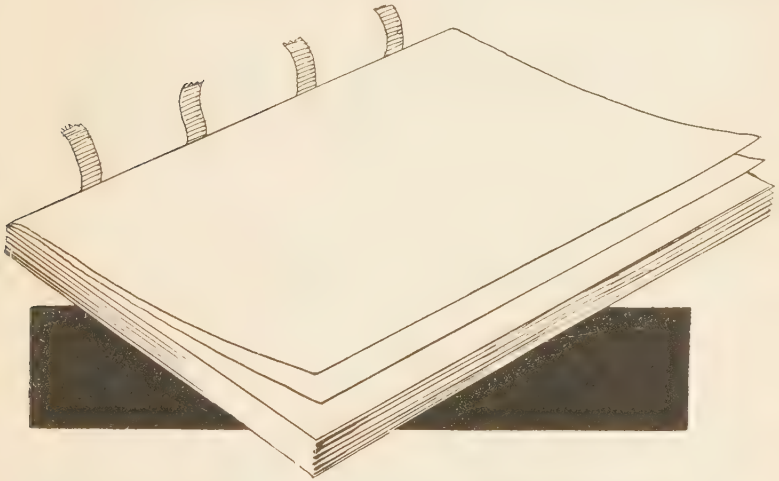

FIG. 276—GLUE END PAPERS SOLID TO STITCHED-ON FLY LEAVES

19. Glue-off book again and affix a piece of fine weave crash *exactly* the width of the back and $\frac{1}{2}''$ less at head and tail, gluing over the crash as well.

A whip-stitched book must be shaped and backed carefully in order to avoid breaking stitches and requires ample gluing with FLEXIBLE GLUE.

20. Cut two pieces of red rope flexible board for covers, square corners, and for *small squares*.
21. Measure and set gauge to boards for back width of cover, planning for a *tight* back and snug fit-up.

22. Cut a piece of artificial leather for cover, cut for corner turn-ins, glue-off material, lay on boards, remove gauge strip and turn-in four sides, square corners.
23. Glue-up back of book and *hang* book into cover, rubbing down firmly. When dry, glue or paste down end papers and press between smooth boards.

Pressing between smooth boards does not produce a "valley" along the backbone joints and is the best pressing method for flexible, thin board covers.

To the Student—It is advisable that you practice whip stitching on several projects. You may use any scrap lots of paper of any size. Vary your experience by combining thin and thick papers, thick and thin sections. Try sawing-out and sewing on cords. Try *sewing-on* a pair of end papers also.

TEST QUESTIONS

1. When must overcast sewing be used?
2. Why is it not used on all books?
3. Explain the overcast stitch.
4. Why do you crease sections and how?
5. Is gluing a factor on overcast sewn books?
6. If you overround an overcast book what may happen?
7. Is it more or less difficult to make a semi-flexible cover with thin board?
8. What is meant by tight back?
9. Can you use paste in hanging in?
10. Explain use of plain (smooth) boards in casing-in.

LESSON XXV

REVIEW

To the Student—In the previous Lessons and Projects you have learned much about various processes in Bookbinding. If you have studied conscientiously and followed the teachings of this book and the demonstrations of your Instructor, you should be able to bind a presentable volume, or rebind in attractive style any books in your possession that need repairing or recovering.

It would be impossible to cover in one lesson a thorough review of everything you have learned in the course thus far. Certain fundamental principles have been encountered, many of them in each lesson and project, because such principles are paramount throughout bookbinding procedure.

Refresh your memory, expand your experience and store away mentally, these important points that have been learned:

1. Methods of making book papers.
2. Types, grades, finishes and grain of papers.
3. Selection of papers for bulk, printing requirements, durability and appearance.
4. Methods of folding papers and securing signatures.
5. Folding and binding problems encountered with different weights and grades of papers.
6. Difficulties encountered in cutting papers and board.
7. When to use paste or glue, as an adhesive on paper.
8. Correct stitching, lacing and tying for books and booklets.
9. Album building, use of stubs.
10. Properties of paste and glues; preparation and use of each.
11. Economic selection and cutting of materials.
12. Problems in pasting and gluing various materials.
13. Method of making book cloth.
14. Types, grades, grains and values of book cloth.

15. Selection, cutting and working book cloth.
16. Proper method of determining cover sizes and making pattern covers.
17. Various types of covers, methods of making, corner variations.
18. Loose leaf book and cover manufacture.
19. Sources of leather supply.
20. Groups, types, qualities and values of leathers.
21. Peculiarities of leather selection, cutting and preparation for working.
22. Types of leather covers and methods of making.
23. Difficulties encountered in working leathers.
24. Uses and working gummed papers and cloths.
25. Book construction, signatures, inserts, end linings.
26. Methods of rebinding and problems encountered.
27. Book sewing, various methods, selection of type of sewing, threads and reinforcements.
28. Special forms of book reinforcement.
29. Various operations of preparing books for forwarding, and in cutting edges.
30. Methods and variables met in shaping and backing.
31. Selection of back lining materials, headbands; proper application of each.
32. Edge treatments and difficulties to avoid in use of different materials.
33. Different methods of affixing books in covers and pressing and drying problems.
34. Necessity for inspection and proper procedure.
35. Commercial folding, types of imposition, necessity of alignment and register.
36. Cutting and positioning inserts, pasting methods.
37. Reinforcement of sections and end lining papers and in back lining for books.
38. Uses of stiff, semi-flexible and limp covers.
39. Advantages and disadvantages of artificial leathers.
40. Various methods of cover decoration and relative merits.

TEST QUESTIONS

1. Describe the process of rebinding a magazine into book form.
2. Tell how to bind a set of new printed sheets.

3. Explain uses of glue and how glues should be mixed and used.
4. What is grain in paper and is it an important factor in bookbinding?
5. Name five kinds of leathers and tell their sources.
6. Explain methods of hand sewing.
7. How should a book be rounded and backed?
8. What is lining-up? Headbanding? How is each accomplished?
9. Name three different kinds of end linings and explain their uses.
10. What is the most difficult operation in bookbinding? Why?

To the Teacher—It will be found an excellent plan to encourage the preparation of short theses on the points stressed in this Review. Have these read in class and discuss the individual understanding of the laws underlying all good bookmaking.

PROJECT 25

Test Projects

As you progressed from one Lesson or Project to another you have undoubtedly thought of many articles and bindings you would like to undertake.

In this last Project of this series, you are expected to make one article and bind one book following your own ideas exclusively. The only requirement is that you must follow the teachings and principles laid down in this course.

To aid you in selecting some particular article or binding several suggestions are given in the following pages with general specifications as to sizes, materials and methods. You are at liberty to select one of these or attempt an entirely original product.

First, follow the safe plan of drawing your idea on paper, as you have been taught to do. Then make a paper pattern thereby checking your sizes and fit-ups of the component parts.

In making one or more objects or bindings endeavor to put into use all of the rules you have learned and the technique acquired. Pay especial attention to:

1. Grain of all papers.
2. Grain (fibre) of all leathers.
3. Right and wrong sides of materials.
4. Accurate fitting and cutting.
5. Selection of either paste or glue.
6. Neatness and finished appearance.
7. Color harmony of materials.
8. Proper strengthening methods.
9. Avoiding "clumsy" appearance.
10. Your Instructor's guidance.

Here are a few articles you can make by careful layout and strict adherance to your teachings thus far:

Articles

1. Portfolio for pictures.
2. Memorandum pad cover.
3. Needle case.
4. Stationery case.
5. Folding picture frame.
6. Easel picture frame.
7. Correspondence folder for desk use.
8. Cardcase.
9. Key case (by using key-holding metals).
10. Telephone book cover.

Portfolio—The first suggestion, a Portfolio for photographs, drawings or lesson plans, is a simple project and produces a useful article.

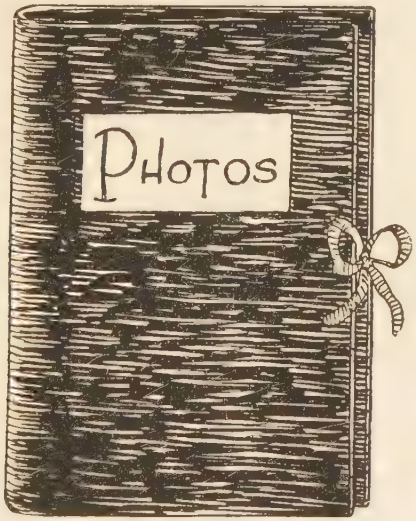

FIG. 277—PORTFOLIO FOR PICTURES

This may be made of cloth, artificial or real leather for outer covering. The best size is 9″ x 12″ capacity. The diagrams on next page illustrate method of cutting, fitting and assembling materials. Real leather makes the best material for cover while smooth skiver for lining or moiré silk may be employed for inner linings. Strong ribbon or tape should be employed for tying. No titling is necessary but your Instructor may help you to letter appropriately in gold.

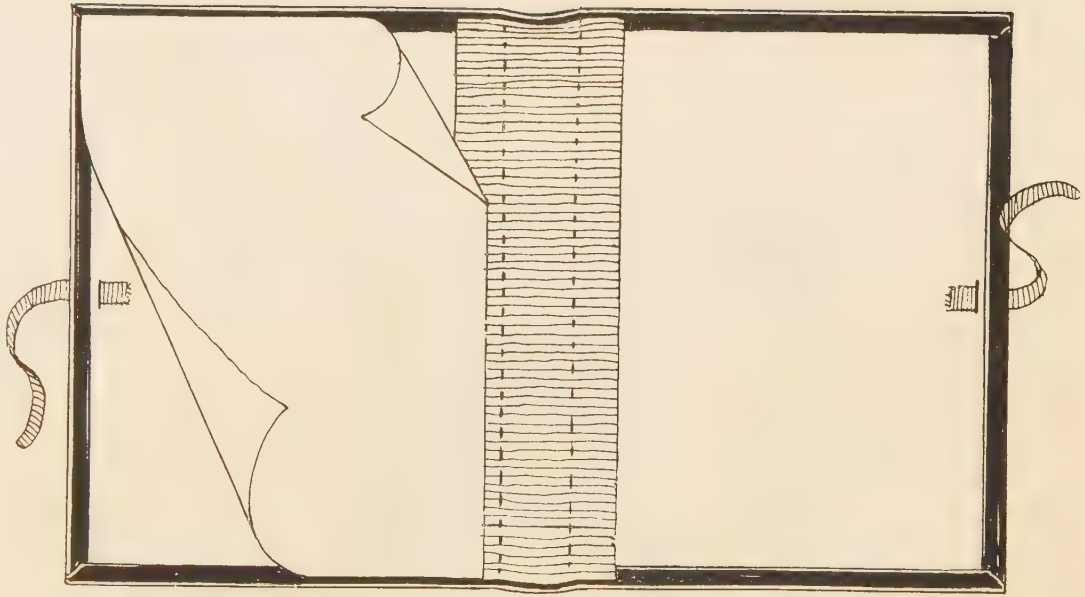

Fig. 278—Diagram of Portfolio Cover and Lining

Cover material is turned in over boards; a cloth or leather joint inserted over back space; paper or other lining material used to cover insides of boards and on right half of cover lining three flaps are made and stitched on *before* mounting this sheet to cover. Ribbons slotted through cover and *glued* solidly under lining sheets form excellent tie-straps. A silk lining may be made *over* paper and similar flaps *stitched* on if desired.

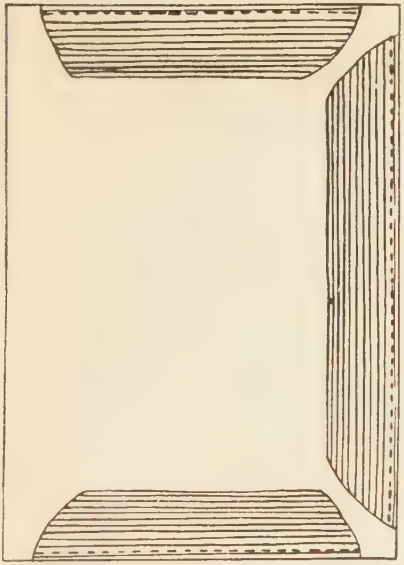

FIG. 279—LINING SHEET FOR PORTFOLIO with three flaps affixed and *stitched* on. These lining sheets may be cloth, leather, artificial leather, or silk. All flaps should be made *over* paper and either with cut *flush* or turned-in edges. If silk is employed a *full* lining for entire inside of Portfolio should be made in one piece, turned over paper, with flaps added and *stitched* on.

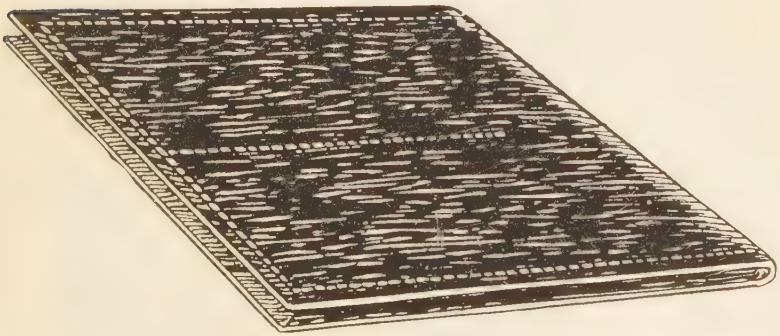

FIG. 280—NEEDLE CASE WHEN FINISHED—CLOSED

Fig. 281—Needle Case—in course of construction. Note method of making board lining in one piece, folded at either end to make needle pockets; covering material for pockets and inner lining of case (in center) put on *before* turning-in the outside covering material. Stitching must be done carefully and accurately, using thread harmonious with color of covering material.

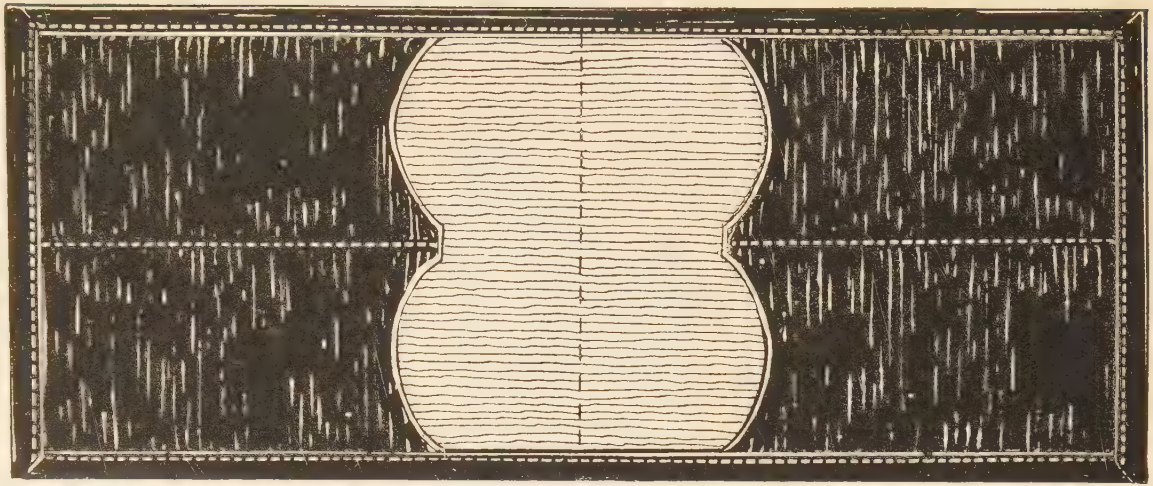

FIG. 282—NEEDLE CASE—finished—inside view. Black dotted line indicates folding point when finished. White dotted lines indicate stitches. See Fig. 281 for plan for cutting material to cover pockets to insure neat coverage especially at pocket openings. Linings under pocket should extend well down inside pockets. Material inside and out should be the same.

Needle Case—The needle case illustrated is a favorite project with students. It may be made of cloth, leather or imitation leather; (some one of the artificial leathers will be found most desirable); silk is often employed.

To the Student—You will observe that all articles suggested are built upon the foundation of a cover not unlike a book cover. The object is obvious. Your experience has been confined, largely, to that type of project for you have been studying *Bookbinding*. By following carefully the procedure already learned you should encounter no problems not already mastered. Should you elect to make the stationery case, follow diagrams and instructions and *first* make a paper pattern, else disappointment may result. Great care must be exercised in making and fitting the pockets.

Stationery Case—For a more difficult project, the stationery case or portfolio is unique and useful as a gift. Like the two previous suggestions this may be made of various materials, but artificial leather is preferable.

A size exactly like drawings will be found just right, although a case of three, four or more pockets can be attempted if desired.

To the Student—By this time you have come to understand that satisfactory results in attempting bookbinding projects are dependent upon *five* general rules:

1. A thorough *understanding* of work to be done.
2. An accurate *plan* and dimensions to be followed.
3. Careful selection of *materials*.
4. Adherence to *rules*.
5. *Neatness* and *deftness* in working.

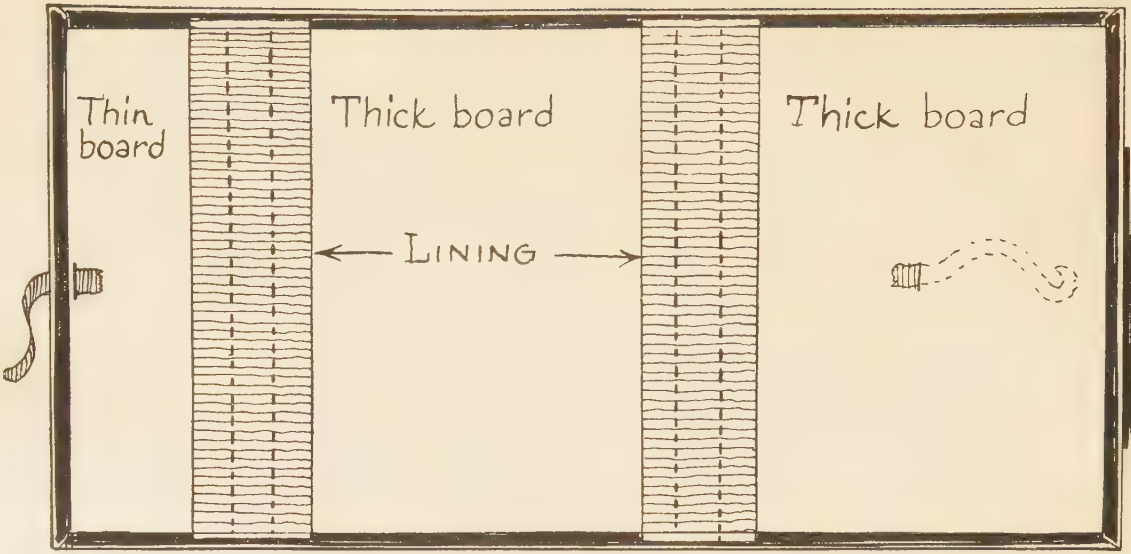

FIG. 283—FOUNDATION OF STATIONERY CASE. First make a cover with *three* boards instead of *two*. Boards extend to dotted lines, line-out inside of cover over spaces between boards with material like outer cover. Insert ribbons *before* affixing blotter pad and pockets. Note that ribbon on *back* cover is *near center*, not at edge, to allow for *front flap*, which comes around to that point. The two *large* board sizes should be 9″x12″, the *smaller* board 5″ x 12″.

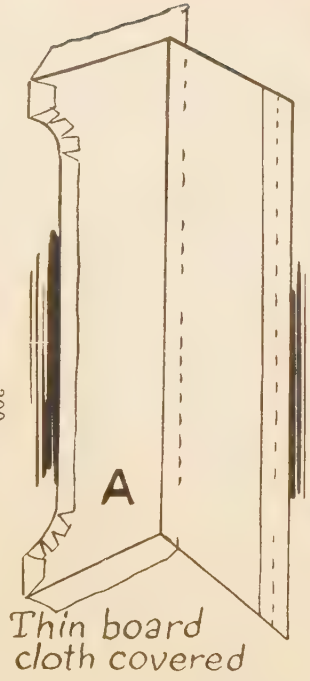

Fig. 284—Narrow Pocket for Envelopes. Note method of cutting out and folding pocket, covering material and turning-in this material. Cloth or other fabric best for covering.

Fig. 285—Back of Blotter Pad, with corners affixed and face covering material turned over edges and brought around on back. Cloth or other fabric corners will do.

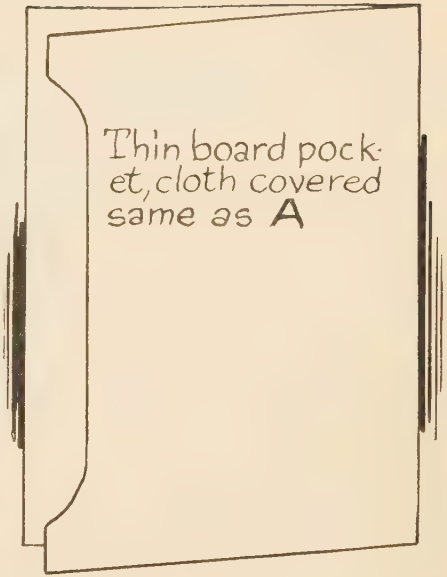

Fig. 286—Large Pocket Base Material. This is covered like the small pocket shown in Fig. 284. Be sure to line-out *back* leaf of pocket to a good depth *inside* the pocket with cloth to strengthen and improve appearance.

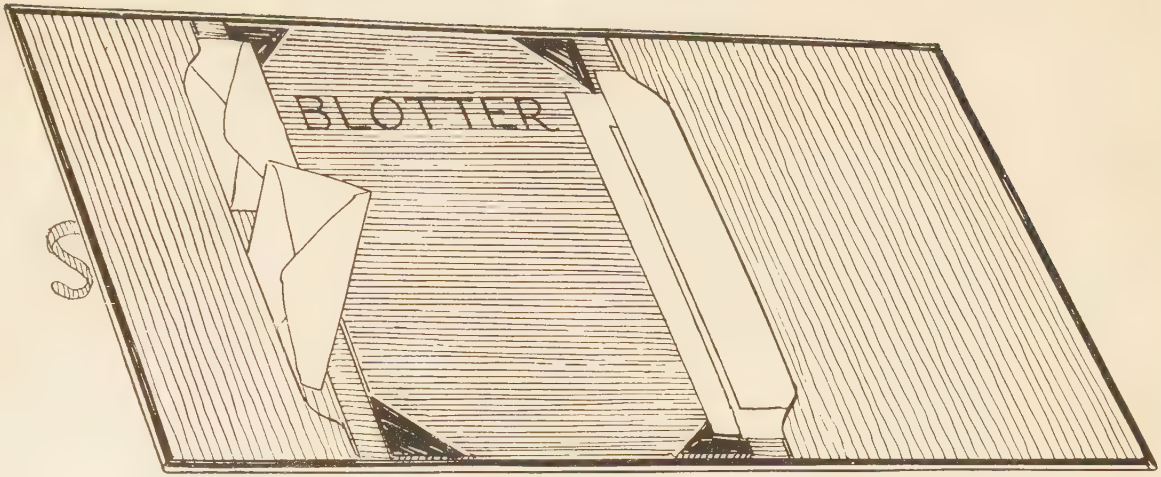

FIG. 287—FINISHED STATIONERY CASE—OPENED OUT FLAT

This gives a clear idea of complete case with pockets for writing paper and envelopes, a blotter covered writing surface and ribbon straps to hold case together when closed. Fold case, when completed, exactly in the center of the joints between pockets and blotter edges.

A folding Picture Frame is not difficult of construction but makes an interesting project problem and produces a very satisfactory gift product. Genuine leather produces the finest type of frame.

Fig. 288—Completed Folding Picture Frame

Artificial leather, or even cloth, may be used with pleasing results. Pay strict attention to diagrams and directions if you would produce a really attractive frame.

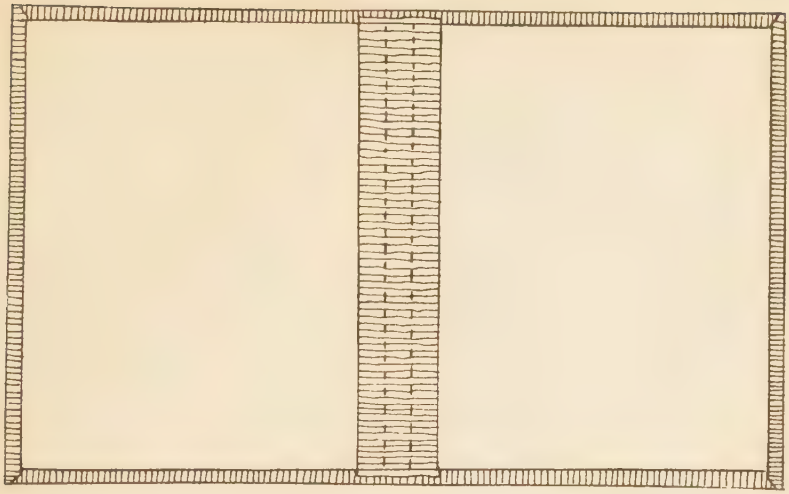

Fig. 289—Outer Cover or Frame

This is made like a regular book cover but with a narrow back space and inside joint lined-out from board to board. Outer board edges *may* be beveled. Boards may be 6″x 9″, 8″x 10″ or 9″x 12″.

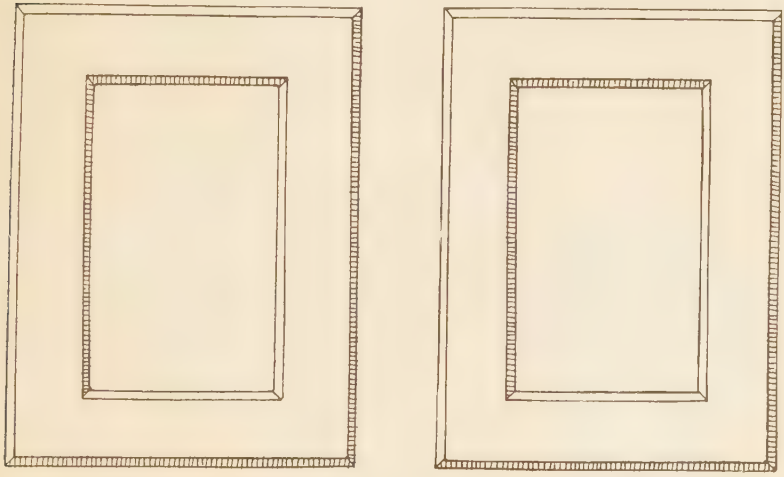

Fig. 290—Two Inside Photo Frame "Pads" or Boards

These should be fairly heavy boards with *outer* and rectangular *orifice* edges beveled.

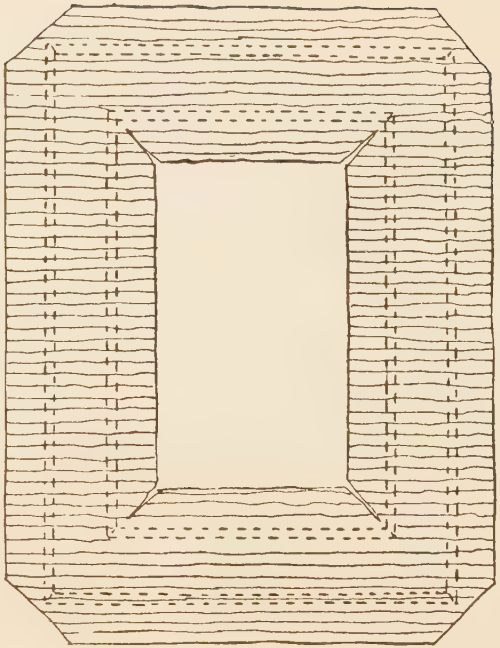

Fig. 291—Material for Covering Photo Frame "Pads"

This should be same material as outer cover. Note plan of cutting to facilitate turning-in. Dotted lines indicate creased lines on finished pad. Gold lines enhance the beauty

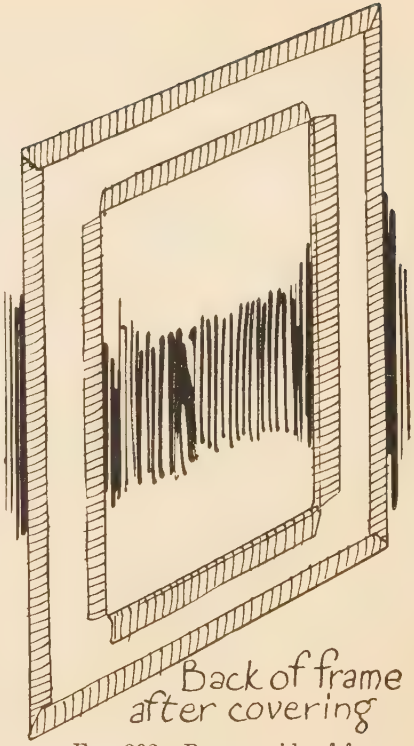

Fig. 292—Reverse side of frame pad after covering and before mounting "pads" to inside of outer cover. Do your creasing on face of "pads" *after* covering and *before* mounting to folder cover. *Do not* glue solidly—

Memorandum Pad Cover—This may be a vest-pocket or larger size suitable for holding the replaceable type of "memo-fillers" obtainable in stationery stores.

Easel Picture Frame—Made like the easel type calendar, but having a "pad" face, either oval or rectangular orifice, like folding picture frame shown.

Correspondence Folder—A single fold cover about 9" x 12" for holding letters and papers on a desk; may be made limp, or semi-flexible or by using artificial leather with smoother inner lining (back coated), merely cutting out material, rounding corners and folding in half.

Cardcase—This project offers an opportunity for real skill and craftsmanship. It should be a two pocket, single fold affair, of leather or artificial leather, stitched, with round corners.

Key Case—A two-fold, round corner snap-fastener case, with a special key-holder-metal riveted by eyelets into inner lining and cover. Leather should be used and case stitched.

Telephone Book Cover—In every home the telephone book is usually an unsightly object. A cover, preferably flexible, lined-out, with two eyelets in the back space and a silk cord or lace run through eyelets for tying book into cover, makes a fine project.

To the Student—No matter which article you select for your project in this lesson, your interest will be really centered around your selection of the actual Bookbinding Project to be undertaken. A few suggestions are made merely as a guide to assist you in determining what to produce:

Bookbinding

1. Rebind an old book.
2. Bind up a set of new sheets.
3. Bind a pamphlet into sewed book.
4. Bind up the lesson sheets of this series into book form.
5. Make a loose-leaf notebook for next year's Course in Bookbinding.
6. Build a stubbed album for photographs or stamp collection.

7. Bind in permanent form, a series of magazines in one volume, such as six numbers of "The National Geographic."

8. Rebind in a more desirable style a set of books you may now own, such as a set of Kipling or Stevenson.

9. Take apart some heavy, bulky single volume and rebind it into a set of two or more volumes in lighter binding.

10. Bind a year's issues of the school paper or the rotogravure section of the local Sunday paper.

Select if possible the binding of a set of *new* printed sheets in order that you may preserve the result as a lasting example of your ability to bind a book *from the flat sheet.*

Endeavor to make this, your own individual work in bookbinding, suitable for exhibition purposes.

To the Teacher—Do not forget the annual exhibition and contest held each year in October, by the Employing Bookbinders of America, Inc. Make a point of encouraging students to prepare projects to be sent to these annual exhibitions from your school. The work of each school is given recognition and valuable prizes awarded annually.

To the Student—Having successfully accomplished all the work prescribed in these lessons and projects, you have mastered the fundamentals of good bookbinding. You have reached the outer door through which you are now qualified to pass on to the more interesting and enjoyable steps in acquiring real training as a binder of books. It is hoped that you are earnestly interested in the technique of binding and desire to continue your studies. An opportunity is available in the Intermediate and Advanced sections of this course.

A COURSE IN BOOKBINDING

PART I

APPENDIX

RECOMMENDED LIST OF BOOKS AND PAPERS FOR SUPPLEMENTARY READING

Paper and Paper Making

Chivers . . . . . The Papers of Lending Library Books
Wheelwright . . . . . Essential Facts about Paper
Alling . . . . . Paper, How it is Made.
Bermingham & Prosser Company . . . . . How Paper is Made
Hampshire . . . . . Art of Paper Making
Little . . . . . Basis of Quality in Paper
Sindall . . . . . The Manufacture of Paper
Dawe, E. A. . . . . How Paper is Made
Maddox . . . . . Paper

Bookbinding Subjects

Cockerell . . . . . Bookbinding and Care of Books
Pleger . . . . . Bookbinding—1 Vol. Complete (Latest Edition)
Bookbinding—Volumes:
1—Paper Ruling
2—Pamphlet Binding
3—Blank & Edition Binding
4—Gilt Edging, Tooling
Philip . . . . . The Business of Bookbinding
Hasluck . . . . . Bookbinding
Soc. Arts & Crafts . . Leather for Bookbinding
Palmer . . . . . The Bindery—(Graphic Arts & Crafts Year Book, 1917)
Bookbinding (Article for Lincoln Library, 1924)
Bookbinding (Article for Revised Edition, The Building of a Book, 1928)

Bennett	The Manufacture of Leather
Prideaux	A Short History of Bookbinding (Zaehnsdorf)
Hitchcock	The Building of a Book (Also New Edition, 1927)
Chivers	The Papers of Lending Library Books
Halfer	The Art of Marbling
Zaehnsdorf	Bookbinding
Adcock	Leather
Dutton	Bookbinding as an Art
Rideal	Glue and Glue Making
Fernbach	Glues and Gelatines
Chivers	Relative Values of Leathers and Other Binding Materials
Wilson	Viewing Leather through the Eyes of Science
Kinder	Formulas for Bookbinders
Hastings Company	Manufacture of Gold Leaf
Taggart	The Glue Book
Adam	Practical Bookbinding—(German—Der Buchbinder)
Wheatley	Bookbinding as a Fine Art
Coutts & Stephen	Library Bookbinding
Kahrs	Glue Handling
Schultz	Leather Manufacture in the U. S. A.
Kress	Notes on Leather
Lamb	Leather Dressing
Eng. Liby. Com.	Leather for Libraries
Leland	Leather Work
Richardson	Leathers for Bookbinding
Dussance	Tanning, Currying and Leather Dressing
Trimble	The Tannins
Jacobson	Modern American Tanning
Battershall	Bookbinding for Bibliophiles
Prideaux	Historical Sketch of Bookbinding
Zahn	On Art Bookbinding
Prideaux	Notes on Printing and Binding
McNamee	Essentials of Good Binding
Prideaux	Bookbinders and Their Craft
Du Pont Co. (Palmer).	Fabrikoid —How to Work and Stamp

Lambert	Bone Products, Glue, Gelatine
Proctor	Principles of Leather Manufacture
Amer. Library Assn.	Binding Specifications
Bosquet	The Bookbinder
W. S. Brassington	Bookbinding
Florence O. Bean	Bookbinding for Beginners
Pitman	Bookbinding as a Handwork Subject
Halliday	Bookbinding as a Handwork Subject
Dana	Bookbinding for Libraries
Brander Matthews	Bookbinding, Old and New
	Bookbinding, Practical and Historical
Cyril Davenport	Bookbindings, English Embroidered
Charles Holme	Book, The Art of the
Holden	Bookman's Glossary
Library Journal	Better Bookbinding for Libraries
U. T. A.	Pamphlet Binding—Apprenticeship Series
Stephen	Commercial Bookbinding
Rauskolb	History and Uses of Gold Leaf
Proctor	Principles of Leather Manufacture
Goodwin, B. L.	Pamphlet Binding
DuBois	The Art of Bookbinding
Pearce	Practical Bookbinding
Horne	The Binding of Books
Doebbelin	The Art of Marbling
Stephen	Machine Book-sewing
	Glue, Gelatine and Manures
Cobham	Leather for Bookbinding
Natl. Aniline & Chem. Co.	Dyes for Leather
Liby. Supply Co., London	Leather for Libraries
Cousin	Raconteurs Illustres (French)

Design, Color and Style

Prideaux	Modern Book Bindings
Buchat	De La Reliure (French)
Bosquet	L'Art de Reliure (French)

Fletcher	Bookbinding in France
Grolier	Exhibit of Recent Bindings (1860-1890)
Lane	Modern Bindings and Their Designers
Davenport	Royal English Bookbinding
Chevreul	Laws of Contrast in Color
Briggs	Twentieth Century Cover Designs
Met. Mus. of Art	The Arts of the Book
Leclerq	Livres Anciens (French)
Rouveyre	Connaissances à un Bibliophile—2 Vols. (French)
Trezise	Design and Color in Printing
Munsell	A Color Notation
Dutton (Holliston Mills)	Bookmaking as an Art

Miscellaneous

Hackleman	Commercial Engraving and Printing
J. J. Little & Ives Co.	Type Specimens and Complete Volume on Book Making
Plimpton Press	Year Book on Bookmaking

List of Trade Publications of Interest to Bookbinders

Magazines devoted exclusively to Bookbinding are indicated *; those devoted to printing and touching on bookbinding subjects **; and those devoted to paper, paper making, trade subjects, etc., and occasionally touching on bookbinding†.

UNITED STATES AND CANADA

American Printer **, 225 West 34th Street, New York City. $4.00 a year. Monthly. *An official organ of the Graphic Arts Industry.*

Appraisal News †, American Appraisal Company, Milwaukee, Wisconsin. Gratis. Monthly. *A house organ containing many informative articles on depreciation and accounting.*

Bindery Talk †, Gane Brothers Company, Chicago, Illinois. Gratis. *A bookbinders supply company house organ.*

Bookbinding Magazine *, 20 West 34th Street, New York City. $3.00 a year. Monthly. *The official organ of the bookbinding industry.*

Boxboard †, Beaton, Godron, Middleton & Rhem, 326 West Madison Street, Chicago, Illinois. $2.00 a year. Monthly.

Carton Age †, Beaton, Godron, Middleton & Rhem, 326 West Madison Street, Chicago, Illinois. $2.00 a year. Monthly.

Commerce Reports †, United States Department of Commerce, Washington, D. C. $3.00 a year. Weekly. (Apply Superintendent of Documents.)

DuPont Magazine †, E. I. du Pont de Nemours Company, Wilmington, Del. Gratis. Monthly. *A publication devoted to interests of du Pont products, featuring Fabrikoid for book covers frequently.*

Electrotypers Bulletin, International Association of Electrotypers of America, Leader Building, Cleveland, Ohio. Monthly.

Electrotype Impressions †, Employing Electrotypers and Stereotypers Association, New York City. Monthly.

Factory †, A. W. Shaw Company, Chicago, Illinois. $3.00 a year. Monthly. *An industrial publication with many departments of interest.*

Fiber Containers †, Beaton & Rehm, 326 West Madison Street, Chicago, Illinois. $2.00 a year. Monthly.

Fortuna Magazine †, Fortuna Machine Company, New York City. Gratis. *A house organ of the company making paring machines.*

Industrial Education †, 237 West Monroe Street, Chicago, Illinois. $2.00 a year. Monthly. *Educational publication of interest to those in the trade training apprentices.*

Industrial Management †, 120 West 32nd Street, New York City. $2.50 a year. Monthly. *Industrial publication containing many items of interest to the trade.*

Inland Printer **, 632 Sherman Street, Chicago, Illinois. $4.00 a year. Monthly. *An official organ of the Graphic Arts Industry.*

International Electrotypers and Stereotypers Union Journal †, Denver, Colorado. Monthly.

Journal of Accountancy †, 135 Cedar Street, New York City. $4.00 a year. Monthly. *An accountants' publication of interest to cost accountants especially.*

Linotype Bulletin **, Mergenthaler Linotype Company, Brooklyn, N. Y. Gratis. *A trade house organ for linotype users.*

Novelty News †, 9 South Clinton Street, Chicago, Illinois. Monthly. *Devoted to the stationery, papeterie and novelty trade.*

Paper Industry †, Edward B. Fritz, 356 Monadnock Building, Chicago, Illinois. $2.00 a year. Weekly.

Paper Makers Journal †, Albany, New York.

Paper Mill and Wood Pulp News †, Tribune Building, New York City. $4.00 a year. Weekly.

Paper †, Paper Inc., 36 West 44th Street, New York City. $5.00 a year. Weekly.

Paper Trade Journal †, Lockwood Trade Journal Company, Inc., 10 East 39th Street, New York City. $4.00 a year. Weekly.

Printed Salesmanship (and the Printing Art) **, The University Press, Cambridge, Mass. $4.00 a year.

Printers' Ink **, 232 South Clark Street, Chicago, Illinois. Weekly. *Devoted to printing and advertising trades.*

Printing **, Walden Sons & Mott, Inc., 41 Park Row, New York City. $5.00 a year. Weekly. *An official organ of the printing industry.*

Publishers Weekly †, R. R. Bowker & Co., 62 West 45th Street, New York City. $5.00 a year. Weekly. *Official organ of the book publishers.*

Pulp and Paper Magazine of Canada †, Gardenvale, P. Q., Canada. $5.00 a year. Weekly.

United States Paper Maker †, 41 Park Row, New York City. $3.00 a year. Semi-monthly.

(Manufacturers are indicated * and dealers **.) Where Manufacturers sell only through Dealers, inquiries made direct will usually be referred to Dealer handling your territory.

Article	Maker or Dealer	Price
Steel Tables—Large	*Hamilton Mfg. Co., Two Rivers, Wisconsin.	On application
Steel Tables—Individual	*Hamilton Mfg. Co., Two Rivers, Wisconsin.	On application
Steel Tables—All Types	*Angle Steel Stool Co., Plainwell, Michigan.	On application
Lengraham Special Table	**Barnhart Bros. & Spindler, Chicago, Illinois	On application
Bindery Tables with Waste Trucks	*American Type Founders Co., Jersey City, N. J.	On application
Bindery Tables without Waste Trucks	*American Type Founders Co., Jersey City, N. J.	On application
Metal Stools—No Back Rest	*Royal Metal Mfg. Co., Chicago, Illinois.	$2.00 ea., f.o.b. factory
Metal Stools—No Back Rest—Adjustable	*Royal Metal Mfg. Co., Chicago, Illinois.	$2.44 ea., f.o.b. factory
Metal Stools—With Back Rest	*Royal Metal Mfg. Co., Chicago, Illinois.	$3.07 ea., f.o.b. factory
Metal Stools—With Back Rest—Adjustable	*Royal Metal Mfg. Co., Chicago, Illinois.	$4.41 ea., f.o.b. factory
Metal Stools—With and without Back Rests	*Angle Steel Stool Co., Plainwell, Michigan.	On application
Hand Sewing Frames	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$4.50 ea. and up
Lengraham Sewing Frame Drawers	**Barnhart Bros. & Spindler, Chicago, Illinois.	On application
Job Backer	*Standard Machinery Co., Mystic, Connecticut	$100.00 to $140.00
Job Backer	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$125.00
Roller Backer	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$950.00
Roller Backer	*Standard Machinery Co., Mystic, Connecticut.	$600.00 and $650.00
Combination Backer and Press	**Barnhart Bros. & Spindler, Chicago, Illinois.	On application
Table Presses	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$50.00 and up
Standing Presses	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$75.00 and up
Standing Presses	*Standard Machinery Co., Mystic, Connecticut.	$60.00 and up
Board Shears	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$250.00
Board Shears	*American Type Founders Co., Jersey City, N. J.	On application
Board Shears	*John Jacques & Son, Worcester, Mass.	$210.00 to $350.00
Board Shears	**E. P. Lawson Co., New York City.	On application
Lever Cutters	*Standard Machinery Co., Mystic, Connecticut.	On application
Lever Cutters	*Chandler & Price Co., Cleveland, Ohio.	On application
Plough and Press	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$30.00
Sewing Machines	*Smyth Mfg. Co., Hartford, Connecticut.	$2000.00 to $2600.00
Sewing Machines	*Jos. E. Smyth Co., Chicago, Illinois.	$2000.00 to $2250.00
Sewing Machines	*Oversewing Mch. Co., 368 Congress St., Boston.	On application
Tablet Equipment	*Hamilton Mfg. Co., Two Rivers, Wisconsin.	On application
Padding Table and Pots	*Hamilton Mfg. Co., Two Rivers, Wisconsin.	On application
Waste Trucks	*American Type Founders Co., Jersey City, N. J.	On application
Waste Trucks	*Angle Steel Stool Co., Plainwell, Michigan.	On application
Glue Pots—International—Dry Type	*Liberty Electric Co., Indianapolis, Indiana.	On application
Glue Pots—Sta-Warm—Dry Type	**Holliston Mills, Inc., New York City.	On application
Glue Pots—Acme—Water Type	*Acme Electric Heating Co., Boston, Mass.	On application

EQUIPMENT SCHEDULE

Article	Maker or Dealer	Price
Glue Pots- Gas Heat—Water Type	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$7.50 ea. and up
Copper Paste Buckets	Any Large Hardware Dealer	$6.00 up
Flour Sieve	Any Hardware Store.	$1.00 ea.
Wooden Paddles	Make in School	$0.10 ea.
Paste Dishes	Any 10-cent store.	$0.10 ea.
Gluing Machines—Potdevin—18"	*Potdevin Mch. Co., 1221 38th St., Brooklyn, N.Y.	$240.00, f.o.b. factory
Gluing Machines—Smyth—22"	*Smyth Mfg. Co., Hartford, Connecticut.	$900.00
Leather Cutting Blocks	*J. K. Krieg Co., New York City.	On application
Stitchers—Thread	*Singer Mfg. Co., New York City.	On application
Stitchers—Wire	*Boston Wire Stitcher Co., Boston, Mass.	On application
Stitchers—Wire	*Latham Mchy. Co., New York City.	On application
Stitchers—Wire	**E. P. Lawson Co., New York City.	On application
Stitchers—Wire	*Leonard Mchy. Co., Los Angeles, California.	On application
Punches—Sieber	*American Type Founders Co., New York City.	On application
Punches—Combination	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$125.00
Stamping and Lettering Presses	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$125.00
Stamping and Lettering Presses—Junior	**Gane Brothers, Chicago, Illinois.	$125.00
Stamping and Lettering Presses—Kensol	*Olsen Mark Corporation, New York City.	$200.00 and $325.00
Stamping and Lettering Presses	*Standard Mfg. Co., Mystic, Connecticut.	On application
Stamping and Lettering Presses	*T. W. & C. B. Sheridan Co., New York City.	On application
Stamping and Lettering Presses—Kwikprint	**Barnhart Bros.& Spindler Co., Chicago, Illinois.	$140.00 to $500.00
Folding Machines—Cleveland	*Cleveland Fldg. Mch. Co., Cleveland, Ohio.	$750.00 and up
Folding Machines—Baum	*R. E. Baum, 615 Chestnut St., Philadelphia, Pa.	$445.00 to $925.00
Folding Machines— Dexter	*Dexter Folder Co., New York	On application
Folding Machines—Chambers	*Chambers Bros. Co., Philadelphia, Pa.	On application
Folding Machines— Brown	*Brown Folding Mch. Co., Erie, Pa.	On application
Folding Machines—Fuller	*E. C. Fuller Co., New York City.	On application
Folding Machines—Mentges	*Mentges Folder Co., Sidney, Ohio	On application
Marbling Equipment and Supplies	*Halfer Co., New York City	On application
Marbling Equipment and Supplies	*Otto Schuenemann, 259 West 21st St., New York.	$50.00 and up
Pressing Boards	*Hamilton Mfg. Co., Two Rivers, Wisc.	On application
Pressing Boards	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$0.60 ea., and up
Gilders Presses and Stands	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$110.00 set and up.
Wringers—Hand Power	Any Hardware or Department Store.	$6.50 and up
Wringers—Power Driven—30"	*American Wringer Co., New York City.	$89.50 and up
Wringers—Power Driven—18"	*Potdevin Mch. Co., Brooklyn, N. Y.	$160.00 complete
Cloth Cutting Table	*Hamilton Mfg. Co., Two Rivers, Wisconsin.	On application
Finishers Presses—Screw Presses	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$4.00 and up
Finishers Stands—Table Type	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$6.00 to $25.00
Cabinets for Pressing Boards	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$15.00 and up

TOOLS AND ACCESSORIES SCHEDULE

ARTICLE	MAKER OR DEALER	PRICE
Glue Kettle Gas Heater	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$12.25 ea.
Cover Gauge	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$10.00 ea.
Finishers Pallets	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$15.00 ea.
Finishers Pallets	**Barnhart Bros. & Spindler, Chicago, Illinois.	On application
Finishers Tools—Round Polisher	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$6.00 ea.
Finishers Tools—Creaser	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$3.75 ea.
Finishers Tools—Flat Polisher	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$3.50 ea.
Finishers Tools—Finishing Roll	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$5.50 ea. and up
Finishers Tools—Hand Tools	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$3.00 ea. and up
Finishers Tools—Fillet Line Tool	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$5.50 ea. and up
Gilder's Agates—Flat	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$6.75 ea. and up
Gilder's Agates—Tooth	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$6.75 ea. and up
Band Rubber	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$3.75 ea. and up
Type Cabinet	*Hamilton Mfg. Co., Two Rivers, Wisconsin.	On application
Brass Type	*Hoffman Type & Eng. Co., New York	On application
Brass Type	*American Type Founders Co., New York	On application
Brass Type	**Barnhart Bros. & Spindler, Chicago, Illinois.	On application
Jogging Plates (Bench Blocks)	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$15.00 and up
Beating Hammer	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$4.50
Backing Irons (Forming Irons)	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$3.50
Backing Hammer	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$2.00
Rounding Hammer	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$2.00
Hyde Leather Knife	Any Supply House	On application
Cloth Cutting Knife	Any Supply House	On application
Utility Knife	Any Supply House	On application
Bone Folders	Any Supply House	$0.20 ea. and up
Wooden Folders	Any Supply House	$0.20 ea.
24″ Starrett Steel Rule	Any Hardware Dealer or Supply House	$1.25
7″ Wooden Triangle 45°	Any Hardware Dealer or Supply House	$0.75
6½″ Weiss Shears	Any Hardware Dealer or Supply House	$1.50
8″ Weiss Shears	Any Hardware Dealer or Supply House	$2.25
1″ Flat Paste Brush	Any Hardware Dealer or Supply House	$0.50
4″ Sloyd Knife	Any Hardware Dealer or Supply House	$0.30
6″ Vacuum Grip Pliers No. 46	Any Hardware Dealer or Supply House	$0.70

TOOLS AND ACCESSORIES SCHEDULE

Article	Maker or Dealer	Price
Coarse Sewing Needles (No. 1 Betweens)	Any Hardware Dealer or Supply House	$0.05 ea.
No. 17 Tapestry Needles	Any Hardware Dealer or Supply House	$0.08 ea.
Harness Needles No. 000 Blunt	Any Hardware Dealer or Supply House	$0.10 ea.
Harness Needles No. 000 Sharp	Any Hardware Dealer or Supply House	$0.10 ea.
6″ Dividers, lock joint, No. 43	Any Hardware Dealer or Supply House	$0.50 and up
Shoemaker's Awls—Straight Steel	Any Hardware Dealer or Supply House	$1.00
1½″ Round Rubberset Glue Brushes	Any Hardware Dealer or Supply House	$2.00 and up
1½″ Round Rubberset Paste Brushes	Any Hardware Dealer or Supply House	$1.75 and up
Zinc Covered Pasting Boards 12″ x 18″	Any Hardware Dealer or Supply House	On application
Fine Bristle 3″ x 6″ Sprinkling Brushes	Any Hardware Dealer or Supply House	$1.50 ea.
1″ Bear Bristle Coloring Brushes	Any Hardware Dealer or Supply House	$1.50
Gold Layer's Cushions 9″ x 18″	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$8.25
Gold Layer's Tips	Any Supply House	$0.50 and up
Gold Cutting Knives	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$1.00
Gilder's Laying Screen Frame	Any Supply House	$2.00 and up
Metal Backing Boards	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$0.35 per inch per pair
Gilding and Backing Boards 6″ x 9″ x ½″ x 3/8″ (Maple)	Any Hardwood Worker	$0.20 per Square inch
Gilder's Steel Scrapers	Any Supply House	$0.30 up
3″ Gilder's Sizing Brush	Any Supply House	$1.25
Sprinkling Screen	Any Supply House	$1.00 up
Paring Knives	Any Supply House	$1.50 up
Sawing Out Saws	Any Supply House	$2.00 up
1″ Half-moon Shaped Wood Chisels	Any Hardware Dealer	$1.25 up
1″ Flat Chisels	Any Hardware Dealer	$1.25 up
1/8″ Round Hand Punches	Any Hardware Dealer	$0.60 up
3/16″ Round Hand Punches	Any Hardware Dealer	$0.60 up
Padding Gauge	Any Supply House	$1.00
Iron Slabs 12″ x 12″ x 1½″	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$15.00
Litho Stone Slabs 12″ x 12″ x 1½″ or 2″	Any Lithograph Plant	$2.00 up
Backing Boards 12″ x 6″—Wedge Shape	*W. O. Hickok Mfg. Co., Harrisburg, Pa.	$0.20 per inch
Coarse Rasps—Rough Edge Rasps	Any Hardware Store	$0.60
6″ Wire Clipping Nippers	Any Hardware Store	$1.25
Pressing Tins, 2 Pair to Set	**Barnhart Bros. & Spindler, Chicago, Illinois.	$0.85 to $2.25 Set

GLOSSARY

OF TECHNICAL TERMS

NOTE—References printed in *Italics* (See *Folding* etc.) do not necessarily refer to other portions of this Glossary. A good dictionary or encyclopedia will be found indispensable to a full understanding of all terms.

ACCORDION – A type of folding, much used on maps, and large spread inserts, whereby all folds are made parallel to each other but not over and over. See *Folding*.

ACCOUNT BOOK STYLE – Ruled inside stock, tag or bonnet board cover, all inserted, saddle-wire-stitched and cloth strip down back over wires.

ACID – Wood and bark extracts used in curing, tanning and finishing leathers for covers; ACID FREE – Leathers tanned by a process which requires no acids and leaves no aciduous residue in skins. See *Leathers*.

ADHESIVE DOPE–A chemical solvent developed as a wash for the turn-ins of artificial leather covers to promote adhesion of end papers to cover.

AGATE – A hand tool used by gilders in burnishing gold or silver edges. See *Gilding, Burnishing*.

ALBUM – A type of binding in which the leaves of the book are separated by "stubs" at binding edge to take up bulk of pictures or materials mounted on book leaves; a strong binding.

ALIGNMENT–The perfect register of printed pages not only on reverse sides of same sheet but from leaf to leaf after folding. See *Folding*.

ALL ALONG – A hand-sewing term for style, denoting that the thread has been drawn from kettle-stitch to kettle-stitch. See *Hand Sewing*.

ALL OVER PATTERN – Any pattern in book cloth which runs both across and down the roll. See *Book Cloth*.

AMERICAN RUSSIA – Cowhide. See *Leathers*.

ANILINE DYE – Coal tar derivative used in edge treatment.

ARABIAN MOROCCO – Sun-tanned goatskin. See *Leather*.

AROUND SIGNATURES – See *Reinforcing, Joints, Stubbing*.

ARTIFICIAL GOLD – A metallic composition leaf much used as a substitute for genuine gold leaf on book covers.

ARTIFICIAL LEATHER – A cotton fabric base goods, dyed, surface coated with a cellulose (guncotton) composition ground in with the desired color, and grained to imitate leathers. Being water proof, oil proof, and grease proof it is highly impervious to wear, insects and deteriorating climatic conditions, and makes an ideal book covering. Works easily, stamps

well and comes in various economical widths and grades. American trade names: Atholeather, Chase-Fabric, Fabrikoid, Keratol, Pantasote, Pluviusin, Sturdite, Zapon.

ASSEMBLE, ASSEMBLING – To gather signatures or sections of any kind into book sequence; (2) to gather complete sets of books prior to, or in process of, packing; ASSEMBLED – A book that has been gathered; a set of books complete, ready for packing. See *Gathering.*

ASSISTANT FINISH, ASSISTING FINISHING – In extra binding, includes siding up the boards with cloth or paper, pasting down the linings, pressing, drying and attaching labels to backbone, pasting inlays or onlays on cover, cleaning, etc.; (2) in extra combination case style also includes gluing down the visible cloth joint and then pasting the lining paper against the inner surfaces of the boards.

ATTACH LABELS – Affixing labels to covers either before or after casing-in; usually considered an operation of assistant finishing.

B A – A pattern on bookcloth resembling linen weaving. See *Book Cloth.*

BACK – The binding edge of a book; that portion of a book cover which bears lettering, ornamentation or labels to permit selection when book is with others on shelf; on a rounded and backed book the width from joint to joint; BACKBONE – The back or binding edge of the book; sometimes called shelf back; the narrow cloth or leather covered edge on which lettering or labels appear; BACK SPACE – Same as backbone space; BACKBONE SPACE – The area inside the cover between the cover boards into which the back of the book fits when cased; BACK STRIP – Same as backbone.

BACKING – The "back" of a book; to shape and prepare the back for reinforcement and to fit the cover; a book may be "backed flat," i.e., with little or no "round," or "rounded" and then "backed."

BACKED – A book that has had the back shaped, joints raised, and made ready for lining-up.

BACKER – A device or machine into which books are inserted or fed, and in which, either by hand or machine operation, the book is shaped, joints raised and "backed." See *Crawley, Hand Backer, Roller Backer, Rounding and Backing.*

BACK LINING – Paper, crash, muslin or other material used to reinforce backs of books after rounding and backing, the paper stiffening in the backbone space of covers, extending down the "back" of the cover, inside, in the space between the bone of the book. Gives shape and firmness to the cloth, paper or leather; and also used to designate muslin reinforcement in same place on paper covers. See *Casemaking, Lining-up, Headbanding, Reinforcements.*

BACKS, COVER – Cloth or leather when cut to proper size for backs of quarter, half or three-quarter binding; (2) the outer square or rounded portion of the book along the binding edge. See *Stock Cutting.*

BACKED UP – Printed sheets completely printed on two sides; "backed up wrong" indicates misprinting. See *Perfecting, Misprint.*

BACKING BOARDS – Wooden boards of various dimensions to accommodate different book sizes, thicker at one side and beveled off gradually to the other, between which single books are placed before inserting in a hand or job backer for shaping.

BACKING HAMMER – A hammer with short handle, flat heavy face, and wedge shaped head, used in shaping a book that is to be hand backed into round and later, while held in "hand backer" for shaping book over jaws of backer to give joints. See *Rounding, Backing, Job Backer.*

BACKING PRESS – See *Lying Press.*

BANCROFT – Trade name for various grades of book cloth; the oldest book cloth manufacturing house in America. See *Book Cloth.*

BAND (*S*) – Raised horizontal ridges across backbone; also applied to gold or blank creased lines on backbone; (2) cords on which hand-sewn books are sewn. Usually signatures are "sawed out" after gathering to permit "bands" to sink into back and be less obvious and uncouth when binding is completed.

BANDING – Variously applied to mean raising or building up bands on a book after lining-up; working up or stamping bands on covers or on books after binding; (2) encasing books in paper bands after examination.

BAND DRIVER – A tool used in hand forwarding to secure uniformity in raised bands.

BARK SKIVER OR SHEEP–Oak-tanned stock much used for law books and governmental work. See *Leathers.*

BARK TANNED–Leather tanned with oak bark. See *Leathers.*

BASKET CLOTH – A pattern used on buckram quality book cloth. See *Book Cloth.*

BAUM – Trade name for an automatic small folder and feeder.

BEAD - Ancient term for *Headband.*

BEATING STONE – Any smooth surfaced stone, usually marble or litho stone, on which papers or books are laid for beating.

BENCH, BENCH UP – To jog up for cutting, or preparatory to "tipping up" for gilder; (2) any bench work preparatory to another operation; BENCHED – A prepared book; BENCHER UP – One who prepares or benches up books.

BENCH PRESS – A table screw-action or letter press.

BEVEL – Term denoting paring or sanding off the head, front and foot pages of cover boards, especially thick, heavy boards, to give neater appearance and easier handling of book after completion; BEVELED – Books so treated.

BIBLE – The Holy Scriptures in book form; BIBLE STYLE – A style commonly attributed to all flexible round-cornered leather work. See *Divinity Circuit.*

BIBLE PAPER – See *India Paper.*

BIND – A general term indicating folding, assembling and affixing covers to any printed leaves; BINDER – In general a bookbinder with journeyman experience; an experienced workman; (2) a loose-leaf cover having some clamping or holding device for retaining loose sheets, pamphlets, magazines or books; (3) a part payment on a contract for binding books; BINDING – The operations required to produce a finished book; (4) the finished book from outward appearance and inward workmanship, excluding printing and paper.

BINDERS' BOARD – A distinguishing name applied to the highest quality pulp boards made to full thickness in one operation; not a laminated board nor a chip, news or pasted board. See *Board.*

BINDERS' WASTE – Spoilage allowance enabling binder to produce full quantity on an edition; (2) the unprinted leaves in the front and end of books which act as paste-downs to cover, so-called from habit in times past always to allow "blanks" front and back for binder, that books might be kept clean until bound. See *End Papers, Waste Leaves;* (3) The scraps of cloth, board and paper trimmings, too small to be classed by themselves. See *Shavings, Skewings.*

BINDERY – A commercial establishment specializing in some form of bookbinding.

BINDING EDGE – The back of the book, where the sections or signatures are sewed together, and to which are attached the reinforcements necessary to strengthen the book and hold it in the cover.

BINDING POST – Metal posts used in loose-leaf covers, which pass through slats or holes punched in the paper filler leaves and thus form a binding medium.

BLACKS – A grade of book cloth in "common" quality dyed throughout.

BLANK – Any unprinted page or leaf in a book.

BLANK BOOK – A style of binding for ledgers and accounting volumes, very strong, flat and free opening, usually of canvas, buckram, or combination leather type.

BLED – See *Bleed.*

BLEED – "To bleed" means to cut or trim a book so the printed matter is cut into and is visible on one of three edges; (2) also applied to pages, covers or linings where an "all over" printing has purposely been arranged to "bleed" in cutting and thus continue pattern, design or colored border to the very edge of the trimmed book. BLEEDING – The process of cutting purposely to "bleed"; BLED – A book that has been cut into the print; BLEEDS – It may be said that a book "bleeds" when insufficient blank margin has been allowed around the printed page to permit binder to cut to required size without touching print.

BLISTER – In covers, a spot where glue has not caused cover material to adhere solidly to boards or stiffening; (2) in paper, a greasy appearing spot. See *Slime Spot.*

BOARD – The press, pulp, news, straw or tag stock used for stiffening covers. See *Bonnet Board, Cover Board, Chipboard, Jute Board, Manila Board, Pasted Board, Straw Board.*

BOARDS – Wood or metal boards either metal bound or plain, used for pressing books after casing-in; (2) boards used in tying up folded signatures; (3) boards used on either side of books while hand backing; (4) gilders wedging and binding boards. See *Backing Boards, Bottom Boards, Brass Boards, Bundle Boards, Cherry Boards, Cutting Boards, Edged Boards, Fibre Boards, Gilding Boards, Grooved Boards, Laminated Boards, Nickel-Plated Boards, Pressing Boards, Smooth Boards, Top Boards, Tying up Boards, Zinc Boards.*

BOARD SHEARS – Hand operated shear-type knife machine used in cutting boards in small quantities.

BOCK – The skin of a sheep which had coarse hair instead of wool. It is sometimes claimed that the animal was a cross breed between a sheep and a goat, but such is not true. Much used as a substitute for goat; a trade name applied to Persian sheepskin enabling the unscrupulous to sell it as goatskin. See *Leather*.

BODKIN – A steel point affixed in wooden handle for piercing holes.

BOOK CLOTHS – A woven cotton fabric, bleached, mercerized, dyed, filled with pulp colors mixed with starches, etc. Calendered and embossed. Book cloths are divided into classes according to their relative costs and qualities. The following are the cloths commonly used:

Linen grades – *Holliston Mills* – Rex, Aldine, Sterling.
Novelex, Royal Vellum.
Interlaken Mills – Vellum de luxe, Art Vellum.
Bancroft Mills – Oxford, Linen, Eaton.
Siegbert Co.– Crown AA, Tuxedo, Cambridge.
Western Shade Cloth Co.– Lyntex, Libertex.

Common grades–*Holliston Mills* –Waverly, Blacks.
Interlaken Mills–Commons, Blacks.
Bancroft Mills – Commons, Blacks.

Extra Grades – *Holliston Mills* – Extra Colors.
Interlaken Mills – Extra Colors.
Louis Siegbert & Co.–Special Colors.

BUCKRAMS – *Holliston Mills* – Record, Craft, Crash. Basket, Caxton, Library Buckram. Buckram.
Interlaken Mills – Art Canvas, Crash, Basket. Intergrain, Art Buckram.
Bancroft Mills – Buckram, Legal Buckram.

BOLTS – Signatures when folded have one or more "closed" edges where folds occur; these are termed "bolts."

BONNET BOARD – A very hard rolled, thin, smooth surfaced board similar to correspondence file indexes, used in stiff blank book cover without outer covering.

BOOK – The completely assembled or bound printed sheets that constitute a finished product.

BOOK MARKS – Usually the ribbon or cord markers inserted in de luxe books (either cotton or silk) while lining up; fastened at the head of the book under the back lining. The book mark should be one inch longer than the distance from the top or head of the book at the backbone, taken diagonally, to the outer corner of the tail of the book; sometimes denotes, paper, celluloid, leather or silk markers inserted loosely in books after binding; ribbon or cord fastened into back lining of books sometimes with metal, cord, or celluloid tips affixed to act as markers.

BOOKLET – Any pamphlet sewed, wired, thread stitched or tied with silk, containing few pages, self or separate paper cover, not bound for permanence.

BOOK PLATE – A label, identifying owner, usually placed inside front cover affixed to lining; sometimes printed in on lining or fly leaf.

BOOKWORMS – Small but destructive worms that feed on paper and binding materials; from their preference as to bindings, they are termed *Hypothenemus eruditus* (leather); *anobium striatum* (paper).

BORDER – Any printed rule or ornamentation around the printed page.

BOTTOM – The lower edge of either cover or book.

BOUND – A book entirely finished and ready for delivery; (2) a board that is edged with metal for pressing; BOUND-IN – Securely fastened into the binding.

BOXED – A set or individual volume assembled and inserted in its box.

BRASS BOARDED – Leathers, usually cowhide-buffing, "boarded" (i.e., hand worked) or plate grained with a faint parallel line effect.

BREAK – A crack in the gold or tissue leaf stamping of a finished cover; (2) the separation between sections in a backed or bound volume.

BRIGHT – A fairly bright, glazed finish on artificial or genuine leathers.

BRIGHTEN – To clean and polish up a leather binding. See *Furbish, Repair.*

BROCHURE – Booklet, either with or without paper cover, held together by thread sewing, silk cord or wiring. A de luxe style pamphlet.

BROKEN BACKS – A result of opening books at one place by force, causing the back to lose its shape or by improper packing, which flattens down the back, spoiling contour and smoothness of cloth or leather; also caused by using papers in bookmaking with grain opposed to backbone of book, resulting in leverage and causing a "throw-out" of whole signatures. May occur where signatures used, either with or without plates, are too bulky, thus forcing apart in backing, leaving ridges; sometimes results from using glue too cold or not sufficiently flexible in gluing off for backing. In leather bound tight-back books, results in ridges appearing on backbone running vertically where leather has been forced away from book. See *Starts, Steps.*

BUCKLE – Severe wrinkles near the head and backbone in folded signatures; (2) covers that have warped and twisted in several directions.

BUCKLING – Heavy papers when folded by hand or by machines not having serrated knife "slitting" wheels, sometimes wrinkle or "buckle" when the last fold is made, due to excess bulk in folds. These wrinkles or buckles usually appear at the head of the signatures near the center or last (*vertical*) fold.

BUCKRAM – A strong, quite heavy book covering. See *Book Cloth.*

BUFF – To polish; (2) to rub off the tops of grained or embossed surfaces to impart variety of color or finish; (3) to roughen the surface of leathers by means of an emery wheel; (4) to pare or skive artificial leathers by use of emery or sand wheels.

BUFFING – A split cowhide; a term also applied to roughing up with an emery wheel or polishing down with soft fabric wheel the extending designs on covers; also used on leather to polish surface or take off the top of the grain on fancy leathers. See *Leather.*

BUILD IN, BUILDING IN – Placing freshly cased-in books in press between either smooth or edged boards, shaping backs carefully, and applying sufficient pressure in press or by clamping devices to hold books firmly while drying. Books in press are said to be *Built In.*

BULK – Thickness of book or cover material; TO BULK – To test the thickness of any material; BULKING, BULKED, BULKED UP – Books that are purposely allowed to bulk as much as possible.

BULL'S EYE – Defects in printing papers of various shapes caused by defective pulp or lumps in the paper making, which flatten out in calendering, causing glazed or greasy appearance. See *Blisters, Slime Spots.*

BUR – A wire edge on a cutting knife; (2) a ragged edge on any printed matter or stamping result; (3) a piece of dead metal adhering to type or type slug, causing a blurred impression.

BUTT – Any type of hinge joint employed for reinforcement or for fastening into a binding some bulky insert.

CALENDERED–A smooth, semi-glazed finish paper. See *Papers.*

CALF – The skin of a calf; originally a term applied to smooth, natural finish, later used to designate also calfskin tanned in colors and with a variety of grains to imitate and simulate, alligator, lizard, snake, etc.

CALF FINISH–The smooth ungrained surface of any animal skin tanned for bookbinding. CALF SPLITS – A split from a calfskin sometimes with a "faked" surface to resemble original hair side of skin. See *Kip Calf.*

CAMBRIDGE – Trade name for a fine quality India Bible paper. See *India Papers.*

CAMEO PAPER – Dull smooth finish coated paper much employed where soft effects are desired in printing and with double-tone inks.

CAMPBELL – Trade name for various binders' supplies; originator of "Flaxenweave," pattern on Interlaken cloth.

CANCEL, CANCELS – The name of a reprint to replace a cancelled section or leaf. CANCELLING – The operation of removing from folded, sewed, partially completed or bound signatures, two, four, or more pages; (2) also applied to the inserting of pages to replace cancels removed; CANCELLED–Any signature that has had a leaf or fold removed and a new one inserted.

CANVAS – A buckram grade of book cloth. See *Book Cloth.*

CAPTION – The descriptive type matter printed under illustrations. See *Legend.*

CASE – A made cover ready to be affixed to book, either with or without stamping.

CASE BOUND, CASE BINDING – A term denoting work on which covers are made up separately from the book; used to differentiate from a hand-forwarded and covered book; a book having a cover, as distinctive from a pamphlet.

CASED – A book affixed in its cover.

CASE MAKER – Hand or automatically fed machine that produces completely made covers from the raw materials previously cut to size.

CASE STYLE – See *Case Bound.*

CASE-IN, CASING-IN–The operation of applying paste or glue to

the end papers of a book, inserting the book in the cover and building into presses between press boards to dry. See *Covering, Extra Covering, Tight Back.*

Caser-In–One who cases-in books.

Caxton Buckram – A grade of library buckram made of the same grade of cotton goods but processed differently, hence obtainable at lower cost; a trade name.

Check Binding–The peculiar style followed on commercial check books; usually a muslin jointed single end paper is employed through which the wire binding staples pass and a litho-surfaced chip board used for sides with a cloth back over the wires.

Chip Board–Cover board made up from old chips and waste in a board machine over cylinders; because of cylindrical method of drying only boards of less than 40 x 1000 inch caliper are usually made.

Chucks – Two squared wooden frames in gilders' screw presses; also called *Cheeks.*

Clamp–Any compressing and holding tool; Clamp Action – The automatic clamping mechanism in any machine.

Clean – A well printed sheet; (2) work well performed; (3) a well stamped cover.

Cleveland – The trade name of a highly developed jobbing folder capable of a great variety of folds. See *Folders, Folding Machines.*

Closed Bolts, Closed Folds–Any fold in a signature not perforated nor split open in folding or prior to delivery of book.

Closed Sections, Closed Signatures – Signatures in which all folds are left closed.

Cloth – A term applied indiscriminately to any full cloth bound volumes; (2) the fabric goods used for book covers. See *Book Cloth.*

Cloth Backs–Covers made of cloth back strip and paper sides.

Cloth Boards – Obsolete term denoting a full cloth cover over board stiffening.

Cloth Case, Cloth Cover – A full cloth cover or case.

Cloth Hinges–Cloth joints extending from book proper on to cover when book is cased-in; (2) any cloth or muslin reinforcement of first and last signatures and linings whereby the cloth extends on to cover boards; (3) board stiffened, cloth covered "lips" fastened into loose-leaf covers for use in conjunction with metal fasteners or posts; (4) any cloth jointing used to bind in heavy inserts.

Cloth Joints – Same as hinges. See *Concealed Joints, Joints, Reinforcements.*

Cloth Linings – End papers made up of cloth, usually paper lined, instead of plain paper.

Cloth Reinforcements – See *Hinges, Joints.*

Cloth Sides – The pieces of cloth used in quarter, half or three-quarter bindings for "siding up" the covers. See *Siding up, Sides.*

Cloth Stubs – Muslin or book cloth strips bound in (usually sewn in) with signatures as strengthening media for heavy inserts.

Cloth Waste – Scraps from cloth cutting.

C M Pattern – A small pebbled pattern in bookcloth.

Coated – Paper having a highly glazed surface; also applies to "dull" coated papers.

COCKLE – Condition of papers in books when too much dampness is allowed to permeate through book; also applied to covers when raising, pulling, waving, warping or curling exists. See *Warping, Wrinkling.*

COLLATING – The operation of examining a book prior to sewing as explained under *Collator.*

COLLATOR – A person who examines gathered books to ascertain if they are complete, properly paged, and as far as a casual examination of the outside of the signatures will show, ready for sewing.

COLOPHON – A trade mark or emblem used by publisher or author on book covers (usually on backbone) to distinguish his publications; also printed in on title pages.

COLOR – Pigment or aniline colors used on book edges; (2) to tint or color the edges of books; COLORING – usually applied to operation of staining or coloring the tops or full edges of books, by the use of aniline or body colorings; principally for tops on novels and full edges on catalogs, price-lists and hymnals.

COMMONS, COMMON COLORS – A grade of book cloth between the cheaper linens and more expensive extra colors and buckram.

COMPENSATION – Stubs or guards bound in books to provide space for bulky inserts such as folded charts, etc.; sometimes obtained by binding in full signatures of blank paper and cutting out all except a narrow portion usually $\frac{3}{8}$ or $\frac{1}{2}$ of the signature, after binding. See *Stubs, Guards.*

COMPRESS – Same as bundling; (2) smashing; (3) nipping backs of books in a nipper or compressor.

COMPRESS PRESS – A smasher, nipper or a bundling press.

CORD – Heavy cotton or linen cord or bands used in hand sewing books; cords extend across backbone and are either "sawed in" i.e., sunk in back, or allowed to form ridges or bands by leaving on top of the back.

CORD MARKERS – Marks across the back of a gathered book to be hand sewn, indicating position of cords or bands and consequently where sawing-out is to be done.

CORNERED, CORNERING – Boards to which corners have been affixed before laying-on or lacing-in to books to be hand covered; where backs are affixed by machine, applies to putting on corners afterward; (2) also applied to operation of rounding corners of boards, books or cover materials before using.

CORNER, CORNERS–Commonly used to indicate type of corners on book cover; square, the usual square corners seen on books and covers; round or rounded corners, obtained by cutting in a machine with a semi-round knife after book has been first cut on three edges; on covers, by cutting the lining with rounded corners and in turning in the cloth or leather to take the shape of the lining; also used to designate corners used on leather or cloth, half and three-quarter bindings; sometimes applied to protection corners used on individual volumes to protect in mailing.

COTTON–Definition applied to usual grades of thread used in sewing to differentiate from silk or

linen thread; long staple Sea Island cotton product preferred.

Cotton Drill – Heavy cotton fabric with coarse strong weave used as a base for certain grades of artificial leathers; also colored and finished for use as covers or coversides on blank books.

Cotton Duck–Similar to drill but of lighter construction.

Cotton Thread – Usual grade of bookbinder's machine sewing thread, made from long staple Sea Island cotton, spun and drawn to various thicknesses, plys and strength.

Cover – The outer covering of a book or pamphlet no matter what material may be employed, usually understood to denote a cover made up and stamped separately from a book; (2) operation of hand covering books as in extra work, job work, etc. See *Case, Covering.*

Cover Boards – Old term applied to two thicknesses of pulp board glued or pasted together to give extra thickness for blank books, the gluing or pasting extending to within two or three inches of the backbone edge and this space left free and open to permit bringing tapes, cords, bands and backlining over the joints and in between the two boards.

Covered – A book that has had boards laced on and the cover material glued or pasted off and drawn on by hand, turned-in over the boards already on the book.

Covering – On hand or machine sewn books, bound by hand work, the pasting off of the cloth or leather and drawing same on over the boards, turning leather or cloth in over edges of boards, and in on itself at head and tail at the back; only done in the more expensive styles. See *Blank Book Style, Casing, Lacing-in.*

Cowhide – The skin of a beeve. See *Leather.*

C Pattern – A pebbled grain embossed on book cloth. See *Book Cloth, Grains.*

Craft–Trade name for a grade of buckram cloth; (2) a name given to bookbinding as a profession.

Crash – Super, English term, *mull*, a coarse, open weave starched cotton goods used for reinforcing backs of books; (2) a strong grade of book cloth; (3) a pattern in buckram grades of book cloth showing a coarse pebbled effect. See *Buckram.*

Creaser – A tool used hot, to put an ornamental blank line around covers, at joining points of half and three-quarter covers, and for imitating bands on backs.

Crease, Creasing – The operation of using a creasing tool; (2) the impression on a cover by the use of a hand tool, heated, of single or double blank lines. In full leather covers, usually seen around the edges; on half or three-quarter covers, at the intersection of the leather back and corners with the cloth or paper sides. See *Blanking, Kolling Squares.*

Crepe Grain–A long, narrow grain resembling the pattern of widow's crepe cloth.

Crop, Cropped –Term indicating a book improperly trimmed, having been cut too small.

Cross-Grain – Diced or interlaced patterns on cloth or leather, sometimes termed cross-grain.

Cross-Stitch – In hand sewing, a method of crossing stitches from one section to another, returning to previous section and then repeating.

CROWN AA–A grade of book cloth. See *Book Cloth.*

CRUSHED LEVANT – Levant that has had the natural grain crushed or polished down. See *Crushing.*

CRUSH, CRUSHING–Usually applied to the operation of pressing down or *crushing* the grain of leathers to give the smooth, glazed, yet grained effect desired in fine work when rough grain leathers are deemed undesirable; obtained by pressing or stamping the leather or cover in a stamping press under a heated nickel plate; also obtained by using a heated hand polishing tool as in old style hand finishing. See *Assistant Finishing, Hand Finishing.*

CURLING – Condition of flexible or stiff covers which do not remain flat after drying.

CUT – To trim edges of books; illustrations or inserts in a book; (2) the incision made in opening "bolts" of signatures to facilitate pasting inserts; (3) the cut made in separating lifts of sheets for binding.

CUT DOWN, CUTTING DOWN–A book cut smaller than the size given on order.

CUT EDGES–Smooth trimmed edges; plain edges.

CUT FLUSH–Smooth edges of cover and book trimmed at one operation; a pamphlet having the cover "flush" with edge of book, no projection on covers.

CUT FOOT EDGES – Books having foot edge only trimmed to regulate variation of overhang on signatures.

CUT HEAD EDGES – Books having top or head edge only trimmed, leaving side and foot edges uncut or rough.

CUTTING – Trimming the books on one, two or all three edges.

CUTTING BLOCKS – Wood or metal strips inserted in cutting machines against which the knife edge strikes in completing the cut; (2) also denoting the cutting surface on which skins of leather are laid for cutting up. See *Cutting Board.*

CUTTING BOARD – Specially constructed block (Krieg) about three feet square, composed of small blocks of wood set on end, tightly glued together and clamped, the top treated with oil to keep surface fairly soft, on which skins of leather are spread for cutting out covers. See *Stock Cutting.*

CUTTING BOARD OIL – Specially prepared dressing oil for keeping surface of cutting boards firm and smooth.

CUTTING BOLTS–The operation of slitting open by hand with a bone or wood folder, to permit pasting and inserting plates, or to give an uncut edged book open leaves. Sometimes secured mechanically in certain folding machines such as quadruple, and magazine folders, eliminating hand work; also termed cutting sections, signatures. See *Opening Bolts.*

CUTTING EDGES – Trimming book edges by machine or hand.

CUTTING FOLDS – Same as *Bolts.*

CUTTING KNIFE – Thin steel blades used in a Hyde handle for leather cutting.

CUTTING KNIVES–Firmly tempered, bevel edge knives for machine cutting that are bolted to "heads" of machines, about 6" wide and ¾" thick, of various lengths.

CUTTING MACHINE – Automatic or hand clamping, guillotine action knife trimmers for books, stock

or paper; single, double, and triple knife machines are in use.

DANDY MARK–Watermark or imitation of same in paper.

DAVEY – Trade name for genuine binders' board.

DAVEY BOARD – See *Davey*.

DECKLE – The feather-like edges on fine papers, retained in books in unspoiled condition for side and foot edges with plain cut or gilt tops.

DEFECTS – Any imperfection in paper, printing or binding; DEFECTIVE BINDINGS – Books containing incorrect signatures or plates, paper or printing defects or having imperfect covers.

DE LUXE–The name applied to distinctive and the more expensive bindings.

DEVIL, DEVIL STICK – Beater for mixing glue.

DICED, DICED PATTERN – Any material having a grained surface resembling miniature checkerboard spaces.

DIVINITY CIRCUIT – Flexible leather bindings having wide overhanging edges, with round corners on book and cover; much used on Bibles and prayer books; properly constructed, the cover edges should meet if pressed flat against the edges of book; and with outward "flare" at corners and backbone. See *Cover Making*.

DIVINITY CALF – Dark brown calfskin binding on the order of a divinity circuit style but with blind stamping and no gilding.

DIVINITY EDGE – Red or red-under-gold book edges; (2) any overhanging limp leather cover edge. See *Divinity Circuit*.

DIVINITY STYLE – See *Divinity Circuit*.

DOMESTIC GOAT – Goatskin brought into the country "in salt, pickle or crust" and tanned here.

DOUBLE SKIN – Leather which has been "staked" too much in tanning or burnished with too great pressure in finishing and the inner and outer layers of the skin separated in spots, causing unsightly wrinkles on the finished cover.

DRAG – The "pull" of a cutting knife as it shears through a pile of sheets or books, exerts a "drag" on the material under the clamp, sometimes causing it to slide, resulting in an untrue edge. See *Draw*.

DRAW–The dragging action of any knife in a cutting machine, tending to draw out the book from under the clamp when cutting certain papers with heavy clay content.

DRAW, DRAWING BANDS – In hand sewn books or on machine sewn books "sawed out," the drawing of the cord bands through the apertures sawed in the back of the book, and cutting bands off, with an allowance on either side of the book for "fanning out" and "pasting down" or for drawing bands through boards on a hand covered book. Modern machines now sew and at the same time feed bands or tapes in one operation, obviating the necessity of *drawing in* bands; sawing out is also eliminated if desired; DRAWING IN, DRAWING THROUGH–The same.

DRAWING AROUND, DRAWING ON, DRAWING OVER – To draw on a leather cover over the back, preparatory to turning in the leather and setting head.

DRILL – A heavy grade of cotton goods with coarser ribs; TO DRILL – Making holes through books by means of a rotating, circular, hollow, high speed *Sparks* drill.

DRY BACK – A cover, the back space of which has no glue remaining from cover making.

DRYING – Allowing books to "set" after each operation involving gluing or pasting; seasoning in press after casing or covering; allowing ink on covers to dry after stamping; DRY – A book thoroughly seasoned.

DUCK – Heavy cotton drill, sometimes called canvas, drill or buckram. Much used on blank books and office binders.

DULL – A knife with poor cutting edge; DULL FINISH – Any material having an unglazed surface; DULL FINISH COATED – Paper having a smooth but unglazed surface presenting equal possibilities from a printing standpoint, as highly glazed coateds.

DYE – Color used on book edges; DYED – Any book cloth that shows the same color on both sides.

EAST INDIA GOAT – A high grade goatskin much desired for making fine moroccos.

EDGE, EDGES – The outer extremities of folded sections; after sewing and trimming, many varieties of book edges are available.

EDGE TREATMENT – Any effort to ornament, protect or change the appearance of plain cut edges.

EDGED BOARDS – Brass, nickel, zinc, fibre, duralumin or other bound boards used in pressing books.

EMBLEM – See *Colophon*.

END PAPERS – The four or eight pages at beginning and end of book, one leaf of which in either case pastes against the cover in a case style book and the remaining leaves act as "fly leaves." See *Fly Leaves, Binders' Waste, Waste Leaves.*

END SHEETS, LEAVES, LININGS – See *End Papers.*

ENGLISH LINEN – A high quality, polished linen book cloth often referred to as law buckram or legal buckram. See *Book Cloth.*

EOSINE – Bright red color.

ETON – Trade name for a medium priced book cloth.

EVEN FOLIOS – As 2, 4, 6, 8, etc., always the left hand pages in a correctly made up volume.

EVEN LEAVES – Even pages.

EXTENDED COVER–(Also termed *Extension, Overhung, Roycroft, Overlapped*), applied in pamphlet binding to covers which extend beyond the trimmed edges of books as apart from "flush cut" books. See *Roycroft.*

EXTRA BINDING – Usually implies entirely hand work; now understood to mean a hand forwarded, covered and finished job.

EXTRA CLOTHS, EXTRA COLORS – A superior grade of book cloth; cotton fabric, starch filled on reverse side and color "padded" (i.e. filled, not dyed) on face of material, giving a finer appearance than ordinary dyed cloth. See *Book Cloth.*

EYELETS – Old fashioned circular shoe eyelets of small size, either of metal or celluloid; much used in loose leaf, pamphlet and stiff covers to protect apertures from tearing out where cords, thongs or fasteners are inserted; EYELETING – Operation of inserting and clinching eyelets in holes already punched or drilled either by hand or machine.

EYES (in paper) – Slime spots, usually surrounding holes in the sheet.

Fabrikoid – A trade name for a make of artificial leather.

Face – An insert is said to "face" the page directly opposed to the printed side of an insert leaf; inserts printed on two sides face the page which precedes its position in the book; (2) the front cover of a book.

Face Title – The advertising plate which is printed on the left hand page facing a title page. See *Card Plate.*

Facing – "Facing an insert" is to position it in the book determining the folio it is to face.

Faint Ruled – Paper that is ruled with very thin inks leaving lines barely discernible.

Fancy – Any finish of papers, leathers or cloths especially decorative, as opposed to plainly finished materials.

Fancy Leather – Leather prepared for the novelty and bag trade, quite frequently used as innovations in book coverings; includes a variety of odd grainings, many-toned effects, etc.

Fandango – A trade name for genuine binders' board.

Fastener – Any metal device used in pamphlets, booklets or loose leaf binders whereby the contents are held together. See *McGill Fasteners, Chicago Posts, Loose Leaf, Posts.*

Fastening – A cloth, muslin or leather joint which "fastens" book to cover.

Fenders – Cardboard, heavy paper or thin zinc sheets, placed between the fly leaves and book proper, while casing books in covers, to prevent spreading of the moisture in paste or glue used in casing-in, to book itself which would cause wrinkling or cockling of leaves; also used in books having extreme swell after sewing, to facilitate smashing without "throwing out" the signatures at the back. See *Casing, Nipping, Smashing.*

Fiddle, Fiddling – Over sewing by means of a cross stitch extending from one section to the next, alternating. See *Stitching.*

Filed – The edges of a book that have been rough cut or roughened.

File, Filing – Evening up edges in uncut or rough cut books, by means of a coarse file or with sandpaper mounted over wooden block; also applied to machine roughing of edges; sometimes used to denote beveling boards by same means. See *Rasping, Roughing, Sanding.*

Finish – Degree of brilliance, pliability and working qualities of cloth, paper, leather and other binding materials.

Finisher – A name sometimes applied to flat or cylindrical polishing tools; (2) an expert hand binder skilled in the art of tooling and lettering in gold or other material.

Finishing – In extra work, the operation of completing the book by tooling of back, sides, edges of boards, rolling squares, inlaying, onlaying, inserting doubles, varnishing, etc., and finishing the book for examination and delivery. See *Doubles, Edges, Inlays, Onlays, Rolling, Squares, Tooling.*

First Fold - The first fold made either by hand or in machine on the full sheet.

Flange – Stubs or "lips," made up for the purpose, of paper, cloth, etc., affixed in books or loose leaf covers, drilled with two or more holes, to admit fasteners, cords or posts for holding loose leaves or sections.

FLAT CUTTER – A single-knife machine, with guillotine action, for either sheet cutting or book trimming; vary in sizes from hand lever machines with a 30" knife to immense paper stock cutters with 72" knife.

FLAXENWEAVE – Trade name for a pattern like B A and L W (from linen effect) used on book cloth. See *Book Cloth, Patterns.*

FLEXIBLE – A general term applied to any binding with other than stiff board covers. More recently restricted by the terms "semi-flexible" and "limp" to any cloth, leather or artificial leather binding opening freely and having a cover that may be "flexed" gently, with cover stiffener loose from cover material. Semi-flexible is by custom applied to books bound in any material having the cover material glued solidly to whatever light weight cover stiffener is used. "Limp" usually denotes covers made without lining stiffener, or with thin rag paper, muslin or super to give the maximum of flexibility and to permit easy "rolling" of book and cover.

FLEXIBLE COVER MAKING–Any type of cover material made up without lining or with soft gray rag paper or flexible rope paper as a lining but glued to cover material only at the turn-ins. See *Flexible.*

FLEXIBLE GLUE – A top grade of ground bone and hide glue combined with glucose and glycerine at 150° heat in a steam jacketed kettle, drawn off and allowed to cool and season; may be flexed and stretched much like rubber and provides the necessary adhesive for insuring flexible book backs and covers; sets more slowly than "hard" glue.

FLOSS – Cotton or silk thread used in binding single section pamphlets, usually by hand stitch tied in bowknot. See *Stitching.*

FLUSH – Even with the edges or cover; FLUSH BOUND – A book with cover that does not extend beyond the trimmed edges; FLUSH COVERED – Same as *Flush Bound;* FLUSH CUT – Book and cover trimmed at one operation, without projection of cover; FLUSH TRIMMED – Same as *Flush Cut.*

FLY – The plain or printed first and last leaf in every book, next to, but not affixed to cover; (2) the delivery sticks on a press which receive the sheet from the shoo-flies and turning it over, deposit on a pile.

FLY LEAVES – See *End Linings, End Papers, Linings* and *Waste Leaves.*

FLY SHEETS – See *Fly.*

FOLD, FOLDING – The operation of folding either by machine or hand, full sheets of 4, 8, 12, 16, 24, 32, 48 or 64 pages in sections of 4, 8, 16, 20, 24 or 32 page signatures, thus reducing a full printed sheet to any desired size for binding.

FOLDER – A thin piece of wood, bone, ivory, or celluloid from 7 to 12 inches long, and from 1 to 2½ inches wide, rounded on both ends, used in folding sheets by hand and in cutting open signature bolts for pasting, etc.; also used in hand forwarding, finishing and in hand cover making, and for turning-in and smoothing down materials.

FORE – The front; FORE EDGE – Front edge.

FORMAT – The size and shape of a book; (2) the arrangement of the interior.

FORWARD, FORWARDING – In extra work, the term covering all operations on a book taken from the cutting machine; backing, rounding, shaping, laying or lacing-on boards, lining-up and headbanding, to making it ready for covering; FORWARDED – A book ready for covering or casing-in; FORWARDER – In earlier days, a hand workman capable of performing all forwarding operations. See *Backing, Headbanding, Lacing-in, Laying on Boards, Lining-up, Rounding.*

FRAY, FRAYING – Spreading out cords or bands preparatory to "tipping down" to book.

FRENCH GOAT – Trade name for imported morocco; probably originated in French Congo.

FRONT – The fore edge of a book; (2) the first part of the book, preceding the text; FRONT EDGE – Same as front; FRONT MATTER – The matter immediately preceding the text.

FRONTIS – See *Frontispiece.*

FRONTISPIECE – The picture or decorative plate preceding and facing the title page.

FULL BINDING – Having a cover of one piece of material as opposed to half, three-quarter, Roxburgh, part-cloth, etc.; FULL BOUND – A book completely covered in leather. See *Covering.*

FULL CLOTH – One piece cloth cover, a book bound in cloth as opposed to cloth back and paper sides, or full paper.

FULL GILT EDGES – Same as *gilded.*

FULL HEFT – Natural thickness of leather hide, unsplit. See *Full Weight.*

FULL LEATHER – Same as *full bound;* a cover of one piece of leather as opposed to half or three-quarter style.

FULL PAPER – A cover of one piece of paper, made over boards; a pamphlet paper cover of one piece.

FULL THICKNESS – Same as *full heft, full weight.*

FULL WEIGHT – In leathers, a term denoting an unsplit skin, natural thickness, "shaved" down on inner side or back of skin to uniform weight. See *Leathers.*

FURBISH, FURBISHING–Cleaning and repairing books that have been slightly used, or become shopworn.

GATHER, GATHERING – The operation of accumulating a complete book or set of leaves in proper sequence. By hand, it consists of laying out on tables around an aisle or alley piles of each signature or leaf in logical sequence, and starting with the last section first, walking around the "lay out" removing from each pile one section, placing it above those previously removed. One circuit produces a complete book.

GATHERER - A hand operator who gathers.

GILD, GILDING - The operation of covering the tops or full edges with gold or silver leaf.

GLAZED – Any surface finished with a high gloss; GLAZED LEATHERS – Usually sheep and skiver, principally used for titles on contrasting leathers; GLAZED PAPER–Highly varnished papers especially leatherette and leatheroid stocks.

GLUE – An adhesive much used in binding, derived from hides, hoofs, horns, and bones of animals combined with chemicals. Two distinct types are used:

"hard" (non-yielding) and "flexible" (having expanding and contracting qualities without breaking).

GLUE BRUSHES – Large circular shaped brushes with long heavy bristles set in rubber or composition and held by a ferule; used in spreading glue.

GLUE OFF, GLUING OFF – The operation of gluing off the back or binding edge of the book after top side and foot edges are trimmed; a hand operation, using warm, slow drying, flexible glue, usually performed just prior to backing, or rounding and backing. This is to allow the glue to dry slowly while the back is shaped by hand or machine and the joints "set"; also applied to operation (old hand method) of gluing off with brush, cloth, paper, or leather for cover making.

GLUE POTS – Copper containers of various capacities, in which glue may be kept at a uniformly satisfactory temperature for working at work tables; heated either by water jacketed or electric coils direct by electricity through insulated walls.

GLUED – Two materials combined with glue; GLUED-UP – (1) Term used to describe operation of applying glue to the edges of loose sheets in making them into pads, or to the edges of signatures preparatory to side-stitching; (2) also applied to the brushing of glue on end sheets of tight back books in casing-in.

GLUER – Gluing-off machines for flat papers, fabrics or leathers, consisting of a water-jacketed or electrically heated reservoir for glue, with rollers which by rapid rotary motion, draw up the glue in a thin, uniform film and apply it to the material to be glued.

GLUING – Any operation which involves the use of glue applied by brush, by hand, or by rollers in a machine designed for the purpose.

GLUING DOWN–Gluing visible joints to cover-boards; (2) gluing down end papers of books previously "hung in" to covers.

GOAT – The source of genuine morocco used in binding. GOATSKIN – The skin of a goat; to label the hide of any other animal, as for example, a sheep, a "goatskin," is a commercial crime. See *Acid Free Goat, Arabian Goat, East India Goat, Domestic Goat, French Goat, Niger Goat, Persian Goat, Soudanese Goat, Turkey Goat.*

GOAT SKIVERS – Thin splits of the hair-side off goatskins; the remainder of the skin going into shoe stock or "dope finish" goatskins.

GOVERNMENTAL STYLE – Full bound work in law, sheep or skiver.

GRAIN – The irregular surface of leathers, as morocco grain, levant grain, pig grain, etc., with natural or artificial grain developed into prominence; (2) the way the fibres of papers run; grain in papers in the making go with the machine, that is, lengthwise of the paper machine (the way the pulp runs). It is imperative that the grain of all book papers, end linings, and covers, run parallel with the backbone of the book; (3) grain in binders' board is the same as in paper.

GRAINED – Any skin of leather that has other than a smooth (calf) finish; sometimes "sprung-up" from the natural grain by hand work with a cork "board," more

frequently secured by embossing the grain into the skin.

GROOVE – The valleys or channels appearing on a cased-in book at either side and parallel to the backbone joints or ridges; GROOVED – A cased in book pressed between metal bound boards; GROOVED BOARDS – Metal bound pressing boards that produce grooved joints.

GUARD, GUARDING – Operation of affixing guards of any sort.

GUARDS – Thin strips of paper or muslin to which are affixed, by machine or hand, inserts, either plates, maps or folders, intended to be bound in, to give opportunity for free opening of inserts by "setting out" the insert by means of the "guard" from the back binding or gutter; also applied to two double or single inserts "hung" together by means of paper or muslin "guards" to permit of inserting, outserting or merely sewing in as a section. See *Hang on Guards.*

GUARDED SIGNATURES – Usually applied to the first and last sections of a book, which after the end papers are affixed, are reinforced against the strain of constant opening by means of a strip of muslin extending around the section and end paper. Muslin is usually applied so that not more than $\frac{1}{4}''$ appears on the exposed leaf of the section and $\frac{3}{4}''$ on the unexposed side of the end lining. When end linings are pasted to covers these muslin guards form hinges that resist constant flexing of end papers in opening book.

GUILLOTINE CUT – The downward action of cutting knives. See *Cutting Machines.*

GUT (real Vellum)–The cured and finished intestines of calves or sheep.

GUTTER–The blank, unprinted space at the back or binding edge of printed sheets; the back fold should on perfectly imposed and folded sheets be exactly in the center, hence the name "gutter". GUTTERS – The unprinted space at the back folds of signatures.

HAIR SHEEP – The skin of an East Indian sheep which grew hair instead of wool. See *Bock.*

HALF BINDING – In the days of hand binding denoted a book having leather back and corners and cloth or paper sides. In a half binding the width of the leather showing on the boards should be one-quarter the entire width of the board and the depth of the corner diagonally the same. Nowadays half binding may denote any class of material employed in like manner.

HALF ROUND – The shape of a book in the back, "half" as opposed to "full" round; half has come to be the accepted standard and is about one-half the actual circumference ratio of a circle whose diameter is the bulk of the book; HALF ROUNDED – A book with a half round back. See *Rounding.*

HAMMER – A heavy mallet-like steel hammer used for "breaking down" backs of books to be rebound and for hammering instead of smashing or nipping books with many and bulky inserts; (2) a hammer quite similar to a heavy shoemaker's tool used in hand backing and in shaping books. See *Backing.*

HAMMER DOWN BANDS – After lacing-in, removing lumps by hammering down smoothly into boards.

HAND COVER, HAND COVERING – To make the cover on the book, after boards are laced on and book forwarded; nowadays only followed on law books, statute volumes and de luxe productions.

HAND CUT – Before days of pressure cutters denoted cutting book edges by first squeezing in a press and trimming with a "plough"; now applied to opening signature bolts by hand.

HAND FOLDING – Folding sheets entirely by hand.

HANG IN, HANGING IN – Gluing off the backs of lined-up books and affixing to covers, setting squares and rubbing down the backs so they will adhere firmly. See *Gluing-down*, *Pasting-down*.

HARD GLUE – Glue for machine casemaking, quick setting with a minimum of flexing qualities; never to be used for gluing-off for backing, lining-up nor for flexible covermaking. See *Glue*, *Flexible Glue*.

HEAD – The top of a book.

HEAD, HEADBANDS – The decorative piece of cotton, muslin, mercerized cotton or silk affixed to the back of the book inside the cover at the top and foot edges of the book. These were once distinguished as head and tail bands. Now both are commonly called headbands. On especially de luxe bindings of today the ancient method of actually sewing up the headbands on the book is performed frequently, although woven headbands are more artistic. See *Bead*.

HEAD BOLT – The top or "head" folds in a signature.

HERRINGBONE – A pattern much used on transparent papers like a herringbone pattern on cloth.

HIDE – The skin of an animal. See *Leather*.

HINGE – Any reinforcing or tipping by means of a stub or guard passing around a section or pasted to it. See *Flange*.

HOLING – Operation of punching holes through boards, in hand binding, by means of an awl-like tool preparatory to lacing on boards.

HOLLISTON – Trade name for various grades of book cloth and binders' supplies; the third oldest cloth manufacturing house in America. See *Book Cloth*.

H PATTERN – A criss-cross embossed pattern on book cloth, giving small diamond shaped spaces.

HUNG-IN – A book that has been glued-in to cover on the back only; in pamphlets, gluing cover on backbone only.

HUNG ON GUARDS – To affix an insert, either single, double, or multiple, to a paper or muslin strip, the strip to be later tipped or stubbed into the book.

HYDE BLADES – Interchangeable knife blades used in leather cutting knives.

HYMNAL, HYMNALS – A style much used on church hymnals; usually a narrow leather back, cloth sides, round or square corners on cover, square corners on book, book having colored edges.

HYMNAL EDGE – A colored edge, usually of pigment base, carefully waxed or burnished to prevent edge color from discoloring ladies' white kid gloves; edge is usually termed "yellow," although more nearly deep buff.

IMITATION RUSSIA – Good weight buffing (split-cowhide) tanned and finished to represent full heft Russia cowhide.

IMPRESSING – Stamping or tooling.

IMPRESSION – The indentions left in

paper by the pressure used in printing to be removed by "smashing."

INBOARDS – A book that has been cut or trimmed after the board sides have been affixed; commonly applied to books having a cover made with narrow cloth back holding sides of plain binders, straw or chip board with a printed label on front board, all cut "flush," boards and all; (2) also used to denote book binding, cloth back and paper sides over boards *not* cut flush.

INDIA PAPER – A quite thin (20lb usually the minimum basic weight) yet opaque book paper, originally manufactured in the far East, more recently made in France, Germany and England and in past ten years in America. It combines the advantage of extreme thinness with opacity, making it useful for production of many pages in one volume, sets, commercial reference books, etc. A 20lb basis gives approximately 1100 pages to one inch bulk and works admirably in flexible, limp bindings much in vogue for Bibles, Testaments, encyclopedias, etc. Its thin format and softness with an almost imperceptible grain, makes folding and binding more difficult than ordinary thin papers and up to 1912 it was always folded by hand. In that year the first machines were built in this country for successfully feeding and folding India paper.

INDIA SHEEP – The skin of an East Indian Sheep.

INNER LINING – The inner half of a two-piece cover lining frequently used in semi-flexible type of covers; the lining paper used on the inside of cover boards to prevent warping; the lining next to the book back when two supers or a special made-up reinforcing lining is employed.

INSERT, INSERTING, INSET – Any illustration, map or other material not a part of the text, which requires separate treatment to incorporate in the book. "Insert" also denotes the process of inserting such material by combining it without pasting it into the book; as for example a one-fold (4-page) pair of pictures laid in the center fold of a signature or "wrapped" or "jacketed" around one of the sectional folds of the signature, making it possible to combine the "insert" in the binding by sewing it in and not by pasting. See also *Outsert.* INSERT – A pasted insert, also denoting the operation of pasting-in inserts.

INSERTED – Folded signatures on which pasting or inserting has been accomplished and sheets are ready for gathering.

INSERT STYLE – Casing books which are unbacked into covers made to fit, with boards set off from back bone, no "joints," creased by machine after drying between smooth boards. Much used years ago in school book work; also applied to books when cover is made and book "stuck in" (i.e. glued into back of cover), as one operation and later "pasted up."

INSIDE – The inner part of a folded signature or section which cannot be observed in examining only the first or last pages of the section; those folios or pages of a section which while flat are on one side of the

printed sheet and when folded are "inside," i.e., after the first or outer page of the section are the next two, then skipping the next two, are the following two, etc.

INSPECTION – In folded sheets, denotes examination to eliminate misprinted, badly folded and blank-one-side sections, determined by inspecting the outer first and last pages by "fanning" groups of signatures; in pasting, gathering, sewing and other processes, excluding final examination, the cursory inspection of each unit or units.

INTERGRAIN – A trade name for buckram book cloth, corresponding to Caxton buckram, often with an embossed crepe grain

INTERLAKEN – Trade name for a varied line of book cloth; the second oldest book cloth manufacturing house in America.

INTERLEAVE, INTERLEAVING – To place between printed or blank leaves of signatures a plain, printed or ruled stock foreign to the sheets as originally printed; quadrille ruled stock often employed by inserting methods to provide memoranda pages in salesmen's catalogues; to place leaves of soft paper between end lining leaves to prevent offset, sticking, etc.

INTERLEAVED – A lining, signature or book that has had interleaves placed throughout and is ready for sewing.

JACKET – Any paper wrapper, plain or printed that comes flush with the cover boards at head and tail and folds over the front and back board edges, being "tucked in" between cover boards and book, front and back.

JOB BACKER – An iron screw press with opposed steel jaws, screw operating horizontally; between the jaws a book previously hand-rounded is placed, usually with a "backing board" on either side, the screw wheel run up and the back "hammered" into round, and joints set.

JOB STYLE – On single volumes of small lots the method of forwarding, etc.; varies with different shops; methods are usually more expensive than in edition shops, often more sturdy bindings result, but are termed "job style" as impractical for quantity production. On single volumes or job work it was long the custom to sew the books either by hand or machine, with a double end paper front and back, often having the inner leaf stitched to the book; the actual end lining, of marbled or colored paper usually with a cloth visible joint, was prepared and when books were ready for backing the outer lining leaves on the book front and back were torn neatly away and the prepared lining tipped or mounted solid to the stitched leaf; the prepared lining if without cloth joint usually consisted of two one-fold linings, the inner one of plain stock, the outer of colored paper, the two mounted to each other, the colored one projecting $\frac{3}{16}$" beyond the backfold of the white; thus when tipped to book-fly both linings adhered and offered a free opening cover without "lifting" the first and last sections; jointed linings had the colored lining solid to the white fly and a cloth visible joint stitched to lining paper and folded back upon itself to pro-

vide free opening and no strain at joint.

JOGGED – Any material uniformly "edged up" and piled neatly.

JOINT, JOINTS – The hinges of the cover where the board stiffening stops and the backbone of the book begins; the small longitudinal ridges at either extreme of the backbone, adjacent to the cover boards, made by the backing machines, hand or roller backers, to create a "butt" or hinging point for the cover to open from, without effecting a strain. Also the reinforcements applied to end linings or the combinations of end papers and end signatures for strengthening the binding.

JOINTED – A book having projected joints; an end paper with muslin or cloth reinforcements; signatures and linings with concealed muslin joints.

JOINTING – Making end linings with cloth or muslin joints; affixing cloth or muslin joints to signature and lining as one unit; working up joints on a rounded book in a hand backer; gluing down and rubbing in joints in an extra or combination binding.

JOURNEYMAN – A binder who has served his apprenticeship and is a competent mechanic.

J PATTERN – A coarse, pebbled pattern in book cloth.

JUMP, JUMP OUT – An expression denoting the working out from under the clamp of lifts or books while cutting; also the "throwing out" of sections while backing; likewise the extension of insert leaves beyond the trimmed edge after cutting due to grain of insert paper being opposed to text or insert stock more susceptible to stretching than the text; also termed *Jumping Out.*

JUTE BOARD – A tough though usually light weight board made largely from jute fibre, much used in check, note and passbook work; also used as cover stiffener in semi-flexible work.

KERATOL – A trade name for artificial leather.

KERF, KERFS – The slots cut by saws in preparing for hand sewing.

KETTLE-STITCH – A hand stitch used in hand sewing, whereby each signature is firmly affixed to the preceding one at head and tail.

KEYS – The wooden or metal clips on a hand sewing bench for holding bands.

KIP CALF – The skin of a yearling beeve. See *Leather.*

KNIFE – The sharpened tool steel knife used in any guillotine cutter for cutting sheets or trimming edges.

KNOCK DOWN, KNOCKING DOWN – The hand operation of hammering down laced-in bands into boards; flattening down joints and taking round out of backs of books to be trimmed.

KNOCKED DOWN – Books that have been flattened down and backs squared for retrimming.

KNOCKING DOWN IRON – A flat iron plate used in knocking down.

LABEL, LABELS – Printed paper titles used on front cover or backbone in place of stamping; leather labels, much used in law book work, thin, vari-colored title skivers, gold stamped, affixed to backbones only; printed address blanks for use in mailing or shipping books individually.

LACE, LACING, LACING IN OR ON – The operation of drawing the cords or bands through the holes pierced in the boards, fraying out the ends projecting through the boards preparatory to hammering down smoothly; LACED,

LACED IN – Books having the cords or bands firmly sewn in by hand, laced into the front and back cover boards.

LAID MARK – The faint, yet definitely discernible marks imparted in paper-making by a dandy-roll, the more pronounced placed about one inch apart and running with the grain (hence parallel to the backbone of the book) the others at right angles and less pronounced but about $\frac{1}{16}$" apart.

LAMINATED BOARD – Any board either of pulp or wood built up to thickness by pasting or gluing several thicknesses together, usually with alternate sheets having grain opposed to its neighbor.

LAMB, LAMBSKIN – The tanned skin of a young sheep, much desired for delicate colors and limp bindings due to its softness and freedom from scars and blemishes.

LAST FOLD – The final or back fold which completes the signature, bringing it to the desired size and page content for binding.

LAW BINDING – Full leather binding (usually a bark tanned light cream colored sheepskin) with laced-on boards, hand covered, having two or three gold stamped title skiver labels on backbone (ordinarily red and black), and inked; or has creased bands on backbone and lines around board edges. More recently law books are machine sewed, omitting the lacing cords or bands, the covers are made, stamped and labeled separately, the books provided with cloth-jointed end papers and instead of hand covering the books are "hung-in" covers, glued down "open" and a very satisfactory result obtained without the expense of extensive hand work.

LAW BUCKRAM – Tan shades of heavy quality buckram book cloth.

LAW CALF – Cream-colored bark tanned smooth surface calfskin, much used on better law bindings.

LAW SHEEP – Cream colored bark tanned smooth surface sheepskin.

LAW STYLE – See *Law Binding.*

LAW VELLUM – Light cream colored vellum (smooth) finished book cloth especially designed to imitate law sheep and calf.

LAW WORK – Any legal binding or books bound in law style.

LAY ON, LAYING-ON BOARDS – Laying front and back boards (after piercing or punching for bands) on books preparatory to lacing in.

LAYOUT – To arrange piles of signatures or sections in proper sequence in an aisle or "alley" ready for hand gatherers.

LEAF – A single sheet having two printed pages, one on either side.

LEAFLET – In pamphlet work, originally a four-page single fold; now applied to a 4, 8, or 16 pp. booklet.

LEATHER – The tanned, finished or grained skin of an animal; bookbinding leathers are divided into classes according to sources:

ALLIGATOR–

CALF – Calf splits, Kip-Calf, Law Calf, Vellum.

COWHIDE – Buffing.

GOAT (or Morocco) – Goat Skiver, Goat Splits; Goat is also divided into Algerian, Andes, Arabian, Domestic, East Indian, English, French, Niger, Persian, and Soudanese; LEVANT (a coarse grained skin usually termed

French or Persian), Soudanese, and Turkey.

PIG –

SEAL –

SHEEP – Hair Sheep, or Bock, Lamb, Lambskin, Law Sheep, Persian, Roan, Skiver, Title Vellum.

All leathers are supplied in a variety of colors, finishes and grains, often in imitation of other and higher priced leathers.

LEATHER – ACID FREE – This term is applied to those leathers which have been tanned without the use of deleterious acids. In tanning it is necessary to remove a certain amount of animal fat from the green skins. In doing this it was formerly the custom to use powerful acids which in taking out the fats destroyed the life of the leather. The use of vegetable oils in tanning has been introduced and to a considerable extent thus obviating the use of injurious acids.

LEATHERETTE – Paper finished on one side to represent leather, made in a variety of colors, finishes and grains.

LEATHEROID – A product made of vegetable fibres, finished to represent leathers, delivered in sheet form.

LEAVES – The printed or unprinted pages, two backing each other, forming a leaf, of a book.

LEGEND – The explanation printed under a map or illustration (also termed *Caption*).

LEVANT – The skin of a goat so termed because of its origin and by reason of its large, prominent and rather irregular grain; FRENCH LEVANT – A goatskin grown in the French Soudan; PERSIAN LEVANT – A goatskin grown in Persia; DOMESTIC LEVANT – A goatskin of domestic or foreign growth, tanned and finished in this country, the levant grain usually being obtained by plate graining and afterward hand boarding to make it appear natural.

LIBERTEX – A trade name for an inexpensive grade of plain book cloth.

LIBERTY FOLDER – Trade name for a small, rapid folder with a wide variety of folds.

LIBRARY BINDING – A book bound to conform with the specifications of the American Library Association; the specific requirements are: Stitched end signatures, sewing on four-cord thread; strong end papers, muslin reinforced end signatures, canton flannel backlining extending on boards, Caxton or Library Buckram covers with round corners.

LIBRARY BUCKRAM – A trade name for a very strong and durable buckram book cloth made to specifications of the U.S. Bureau of Standards.

LIBRARY PASTE – The high quality photo-mount or library paste sold for office use; much employed for tip-on inserts and where flour paste tends to wrinkle or cockle inserts.

LIBRARY STYLE OF ROUND CORNERS – Round corners on book covers especially designed for heavy fabrics such as Buckrams; the turn-in is made by three distinct laps or folds as opposed to many small "picked-in" creases on thinner and more easily worked materials.

LIMIT PAGE – The page in a book, usually immediately following the half or bastard title, on which is printed the quantity of the edition, and in more or

less de luxe, restricted editions, the serial number of the book or set.

LIMP BINDING – A book bound in a very flexible cover and with easily flexed back; LIMP COVER – Usually one without cover stiffening, having material turned-in upon itself only; LIMP LEATHER – A leather cover made limp. See *Flexible, Semi-flexible.*

LINING – That material which goes against another material for various uses; BACK LINING – The crash, paper, muslin or canton flannel used as a reinforcing medium on the backs of books; COVER LINING – The strip of paper or board in the backbone space of cover between front and back boards acting as a reinforcement and a base for stamping; END LINING – Same as *End Leaves, End Papers,* the white or colored leaves affixed by stitching, tipping or jointing to the book, and half of which pastes or glues to cover boards; LININGS, LINING PAPER – See *End Papers, Waste Leaves, Fly Leaves.*

LIPS – In loose-leaf work the hinges or flanges built in with holes drilled or punched for cords, fasteners or posts for holding contents.

LITHO STONE – A fine grained, smooth stone, used by lithographers, square sections of which are preferred by leather workers, assistant finishers and others on which to lay their work while performing their specific operations; used by leather workers when "paring" by hand and by casers-in on flexible work in shaping up books in cover.

LOADING – Clay or other filling material used in paper making, especially coated stocks, very injurious to knives used in book trimming.

LOCK STITCH–Any method of thread sewing or stitching whereby the stitching at each operation is "locked" and cannot unravel if cut on either side of the completed stitch.

LOOSE BACK – A book lined up in usual manner and cased in cover with the inner lining of the cover between the boards loose and not glued or pasted to the back of the book. See *Casing-in, Lining up.*

LOOSE COVER LINING – In flexible work, the cover material is not glued or pasted "all-over" but only at the turn-ins and slightly "tipped" to the linings at the back space, thus leaving the cover "loose" from the lining.

LOOSE FIT UP – A cover too large for the book in the backbone space, allowing a surplus space between book back and cover backbone.

LOOSE LEAF – A book or collection of leaves, trimmed on all four sides, the binding being effected by punching or drilling holes in the back space or gutter margin and placing the completely assembled unit in specially prepared covers, having metal "posts," rings, or fasteners for holding the leaves in compact and uniform shape.

LOP-SIDED – Any signature or book that is folded or backed with one side out of true with the other.

L-PATTERN – A levant pattern embossed on book cloth.

LUMP – Small, hard, pill-like substances in flour paste or glue, caused by imperfect mixing, lack of proper dissolution, or in screening; LUMPY – Paste or glue full of lumps.

Lying Press – An old time clamping press, similar to our present gilding press, having two wooden "cheeks," two steel screws operating through bronze "chucks," in which books to be hand-backed or trimmed by the "plough" method were placed. See *Plough and Press.*

Lyntex – A trade name for an inexpensive grade of book cloth.

Machine Finish Paper – Paper having a firm, smooth finish, slightly smoother than English finish but not as smooth as supercalendered stock.

Machine Folding – Any folding performed by machine, even one-folds, as opposed to hand work.

Mackle – A blurred effect in the printing, similar to "smudge," offset, etc.

Magazine, Magazines–A pamphlet product usually saddle or side wired, sometimes perfectly bound, seldom sewed.

Mallet – A short handled, two faced, flat surfaced hammer, used for reducing the swell and irregularities caused by hand or machine sewing; (2) a beater stick for smashing; rawhide mallet – A round headed mallet of compressed rawhide layers with short wood handle, used for striking steel dieing out tools for cutting leather corners on a block.

Manila Board – Thin, strong board made from manila base, sometimes called "tag-stock," used for cover stiffening, fenders and notebook covers.

Maple Sticks – Usually about 1″ square and from 30″ to 75″ long, used in guillotine machines as the base against which the knife strikes in completing a cut, now being replaced by aluminum sticks.

Marble, Marbling–The process of decorating the three cut edges of books, by first clamping the books tightly in uniform alignment, then dipping them gently in a vat in which reposes a liquid on the surface of which has been sprinkled or spattered water colors, especially prepared for the purpose, in desired patterns. The colors lie on the surface of the vat and adhere instantly to the book edges; various patterns are obtained by "spotting" the colors, combing them after "sprinkling" or "spotting" on the vat and in other ways.

Margin or Margins – The white, unprinted area surrounding the printed page or illustration. The inside or back margin is nearest the binding edge; the head margin is at the top, the side margin is to the front edge and the tail margin at the foot or lower extremity of the book. The narrowest margin should be at the back and increase proportionately at head, side and tail, with the larger margin always at the tail of the book.

Marginal – That which appears in the margins; as, marginal notes, indices, folios or side heads, printed outside the type page dimensions and must be watched in trimming books.

Marking, Marking Up – To mark the position of cords or bands on the back of a hand sewn book; also indicative of the operation of stamping an identification mark on the outer front fly leaf (where it pastes down to the cover) before gath-

ering to insure against mixing up several editions; likewise denotes the individual marks placed in books by sewers, collators or examiners to determine their responsibility if errors are later discovered.

MCGILL FASTENERS – Brass split posts used in loose-leaf covers to hold contents between lips or hinges.

MEDIUM BRIGHT - A definition of the degree of glossiness of the surface of artificial leathers.

METAL FASTENERS – Metal posts or clips used in loose-leaf covers for holding contents in cover; MCGILL – Round or rectangular headed brass split holders with pointed or rounded ends; CHICAGO POSTS – Metal screw posts having two heads, one fastened to a full length post, the post being drilled and tapped with a thread, the other head attached to a shorter post, which is threaded to insert in main post.

METALS – Metal parts used in loose-leaf cover manufacture, usually made in two parts like two letter "L's," interlocking, and having two-piece posts riveted into each half metal.

MILLBOARD – Binders' board.

MISSION GRAIN – A coarse, wide and narrow grain running in irregular lines crossing and recrossing each other and with crevices usually showing a deeper tone than surface.

MITER, MITERED – Ornamentation in form of straight lines which touch but do not extend beyond each other, as in case of a border line around a cover where four lines join neatly in corners; MITERED FILLETS – Backbone fillet lines which touch but do not pass beyond vertical panel or "run-up" lines on either side of backbone; MITERED LINES – Any lines which stop where they meet lines running in a right angular direction.

MOCK TITLE – A half title or bastard title.

MOIRÉ – Watered silk effect on silk paper or book cloth. See *AA Pattern.*

MOROCCO – *Acid-free, Algerian, Andes, Arabian, Domestic, East Indian, English, French, Niger, Persian, Soudanese.* Specifically the skin of a goat, cured, tanned and finished in various colors and grains; MOROCCO GRAIN – A medium size pebble grain larger than pin seal and smaller than grosgrain or levant grain. See *Goat, leathers.*

MOTTLE – To color edges by sponge application of aniline or pigment dyes put on in irregular pattern; also applied to marbling; MOTTLED CALF – Cream colored calfskin treated with colors in an irregular pattern; MOTTLED PATTERN – Any irregular pattern on colored book edges, giving two or more tones to a completely colored edge.

MOUNT, MOUNTING – The operation of strengthening end linings, cover materials, etc., by backing up with thin strong, noncurling plain paper; also applies to mounting coverboards to] absolutely prevent warping or shrinking after binding; MOUNTING PAPER – Smooth machine finish paper usually not over 60 lb. weight, used in mounting boards, linings, etc.

MOUNTED – Any article that is pasted or glued solid to any backing material.

MULL – The English name for super or crash.

MUSLIN – Close woven firm cotton

fabric usually starched, sized or glued, to make compact and prevent stretch or shrinkage; PAPER MUSLIN – Muslin finished much like supercalendered paper on one side; also applied to a coarse open weave muslin having a thin paper back to add strength.

MUSLIN JOINTS – Any muslin joint which passes entirely around a signature, around a signature and lining, or affixed to signature and lining; also denotes muslin stripping of inside center fold of signatures.

MUSLIN REINFORCEMENTS – Any type of joint, guard or protection around, inside or attached to lining and end or intermediate signatures.

NAP – "FUZZY" surface of leathers or fabrics, used on velvet, ooze or suede finish leathers, to indicate the "face" of the material; NAP SIDE – The "fuzzy" side of leathers or fabrics as opposed to the smoother reverse side. See *Ooze, Suede, Velvet.*

NEEDLES – Ordinary hand sewing needles, not unlike, but coarser than ordinary needles.

NEWS BOARDS – A grade of board made largely of reground newspaper stock. See *Board.*

NIGER GOAT - Genuine goatskin obtained from the Soudan. See *Leathers.*

NIP, NIPPING – Squeezing books, after sewing or stitching, for about a 2″ width along the backbone to reduce swell caused by thread used in sewing and to give uniform bulk to all books alike; replaces old hand operation of hammering; much used on hard finished papers which do not require smashing.

NOVELEX - Trade name for an inexpensive grade of book cloth obtainable in a variety of colors and grains. See *Book Cloth.*

OAKUM BOARD – Good quality builders' board having a generous content of oakum; sometimes called "tarboard" due to its dark color.

OASIS MOROCCO – Same as NIGER, Soudanese Goat. See *Leathers.*

OBVERSE – The back of a book, the outside back cover. See *Verso.*

ODD FOLIOS – Uneven pages, as 1, 3, 5, 7, etc.

OFF AND ON – A method of sewing by hand, in which stitches in regular sequence were skipped. See *All Along, Lining Up.*

OFFSET – Smudges, smears or blurs on printed sheets, caused by a printed section coming in contact with an unprinted section before the ink was dry (or "set"), thus leaving a smudge or duplication of the print where it should not appear. Also called *Set off.*

ONLAY – Usually a highly decorative colored panel printed in colors on coated paper and glued to the front cover of books without first blanking the cover to receive it. Pattern cloths should be blanked first; then it becomes an "inlay."

OOZE CALF, SHEEP, GOAT, ETC. – See *Suede, Leathers.*

OPACITY. OPAQUE – The quality of paper and printing which indicates, especially on thin and India papers, the ability to print with sufficient depth of color but without the print on one side of sheet showing through to the detriment of the print on the reverse side.

OPEN – A signature or book in which each leaf is separate and distinct from the next, and has no closed folds or "bolts";

OPEN A BOOK – To open a bound book correctly, the copy should be held easily in both hands, front edge facing up, then by regular, uniform motion, opening first at front, then at back and then repeating, a few leaves at a time until the center of the book has been reached; thus undue strain is averted and book free opening and useable.

ORDERBOOK STYLE – An account book style much in favor; leather back and rounded corners, canvas sides, ink stamp on sides, gold stamp on backbone and at joints on sides; sometimes bound entirely in canvas with ink stamping.

ORIHON – Name given to a method of Japanese and Chinese binders centuries ago in binding loose leaves of rice paper or parchment along one edge with metal, leather or other fastenings similar to our side wired or stitched styles at present.

OTTER RIVER – Trade name for genuine binders' board.

OUT OR OUTER PAGE, OUTSIDE – The first page of a folded section.

OUTSERT, OUTSERTS – Any single or multiple fold section placed around a section also folded, so-called because placed "outside" as opposed to "insert" meaning "inside."

OUTSET – To remove a single-fold 2 leaves – 4 pages, from a signature, as four blank pages not desired. See also *Cancel, Cancelling.*

OUT OF BOARDS – Opposed to *in-boards;* books having boards projecting over the trimmed edges.

OUT OF PRINT – No copies available.

OVER AND OVER – A form of parallel folding as distinctly opposite to "accordion" parallel folding. See *Accordion Folding.*

OVERCAST, OVERCASTING – To sew single leaves or sections by an over and over stitch. See *Whip Stitching.*

OVERHANG, OVERHANGING, OVERLAP, OVERHANG COVER – The extension of cover, either pamphlet or edition type, beyond the cut edges forming "squares."

OVERSEWING – A new method of machine sewing much used in library reinforced binding; instead of sewing through the back fold of the sections the needles pass obliquely through the section itself forming a lock stitch with each separate section and independent lock stitches "all-along" the back; a superior method to the ordinary type of sewing, and very advantageous for single leaves and sections of varying sizes and thickness.

OXFORD PAPER – Another term for India Bible paper originating in England. See *Papers.*

PAD, PADDING – To make into pads by gluing or gumming one or two edges, sometimes reinforced by super or paper; PADDING BENCH – Special type of table to which is affixed a padding clamp for use in padding exclusively; PADDING CLAMP – A compression table clamp holding pads on two edges, leaving two edges, one long and one short available for padding; PADDING GLUE – Special, very flexible, adhesive used exclusively for padding; some padding glues are largely rubber composition.

PAGE – One side of a printed leaf; PAGED – A book having folios

in proper sequence; PAGINATE – To give the numbers or folios of a book.

PAMPHLET – A term to designate edition work, not having stiff covers, or if stiff covers, cover not turned in; paper or cardboard covers only. Usually side or saddle wire or thread stiched, sometimes sewn with covers glued on back, or solid to linings; PAMPHLET-IMPROVED – New style, usually:

A – Books with end linings, cloth strip down back over end linings, paper sides on solid to linings, over the cloth strip to cover joining, cut flush.

B – Book with end linings, cover on solid to back end linings, cloth strip down back of cover outside, over binding edge to reinforce cover and prevent cracking.

PANTASOTE – A trade name for artificial leather.

PARALLEL FOLD – Any series of folds in sequence made in parallel fashion; PARALLEL FOLDER – A machine designed solely for parallel folds.

PARCHMENT – The tanned gut of animals. See *Leathers*.

PARE, PARING – To shave down the edges of leather after it is cut to size for cover making to eliminate the rough feel of the two thicknesses of leather after the cover is "turned in"; in heavy leathers and wide "turn-ins" to make cover making easier. See *Skiving*. PARED – Leather that has been edged-off; PARING KNIFE – A flat, wide-bladed knife with cutting edge cut on an oblique angle, permitting a "shaving" motion against leather edges; also a term for the circular paring knives in machines.

PART-BINDINGS, PARTI-BINDINGS – Books having covers of cloth back and paper sides, no corners; also paper back and different paper sides, no corners.

PASTE – Flour or other vegetable paste used as an adhesive in affixing plates, maps, guards, end papers; tipping sections and in casing-in or covering; in some instances library paste is used for fine work in tipping plates or color plates in books at head only.

PASTING – The operation of affixing plates, maps, tissues, guards, etc., into sections, and end papers to first and last signatures.

PASTE-BOARDS – Zinc-covered boards used by hand pasters on which work is laid out for pasting and on which paste is spread for laying on muslin joints or guards.

PASTE GRAIN – Interlaced, longitudinal impressed lines on a glazed surface, forming a linen effect on leathers.

PASTE WASH, PASTE WASHING – Applying an even coating of thin paste to reverse side of leathers after cutting, but before using, to cause leather to shrink and retain shape in working; (2) also refers to operation of removing old layers of glue from backs of books when rebinding by coating the back with a thin layer of paste, allowing it to stand and then scraping the back; this removes the old dry glue with the paste and leaves a clean back; (3) backs of some new books are sometimes paste washed after backing, when no back lining is to be used, and a tight back leather binding is planned. This removes

the glue put on for backing and insures direct adhesion of leather to actual sections of book.

PASTING OFF, DOWN, OR UP – In tight back bindings after "hanging-in" the book (usually with glue); the end papers are "pasted off" or "up" and the book put in press.

PASTING UP – See *Pasting Off*.

PATTERN – A reproduction of any desired effect by means of embossing book cloth between heated engraved and matrix rolls; book cloth patterns include: A, AA, BA, Basket, C, CM, Crash, FL, H, Intergrain, J, L, LW, N, S (Silk), T, V (Vellum). *See each pattern explanation under alphabetic position.*

PATTERNS – Metal plates, the exact size of cover pieces or backs, used as guides in cutting skins into covers or backs.

PERSIAN GOAT – The skin of a goat originally bred in Persia now derived from a widespread territory in that general locality; PERSIAN SHEEP – The skin of a sheep from the same source.

PIECED, PIECING – A cover composed of several different parts or pieces of different materials; (2) also used in fine leather covers to indicate the clever joining of two smaller pieces of the same leather to make a full leather by using pieces that in themselves were not large enough for full covers.

PIG, PIGSKIN – The skin of a pig or hog, with bristles removed, degreased, cured and tanned, usually split to secure a pliable thickness for book work. See *Leathers*.

PIG GRAIN – An embossed grain on leathers other than genuine pigskin, by which it is simulated, usually at lower cost.

PIN GRAIN – A small pebbled grain.

PIN SEAL – A very small fine grained leather effect resembling natural grain on a young seal skin.

PIPE – Genuine leather skins which show a double-skin effect when leather is bent or flexed, usually shows up after cover making or hanging in books direct to leather backs. PIPING, PIPED – The condition of a leather skin or cover that shows a "double-skin" effect.

PLAIN – An untreated edge, cover or material without pattern or grain; PLAIN EDGES – Smooth trimmed and neither colored nor treated; PLAIN VELLUM – A book cloth in the original smooth, ungrained or unpatterned, calendered surface;

PLATE, PLATES – Printed inserts either single or in pairs for pasting, inserting or outserting.

PLEAT, PLEATING – Any series of folds, parallel and yet in alternating directions, much employed on large inserts. See also *Accordion Fold, Fan-Fold;* PLEATED FOLD. See *Folding. Accordion Fold.*

PLOUGH AND PRESS – An old-fashioned hand tool and press for trimming book edges; superseded by the knife type cutting machine; consisted of a sliding wooden block with a slot holding a chisel having a diagonal edge, the chisel held by a wooden wedge, the entire plough arranged in a pair of wooden slides above the press; the press was like our present gilder's press.

PLY – A term denoting the number of thicknesses of paper or board pasted or glued together

to make heavier weight stock; as 3-ply cardboard. See *Board.*

Polished Buckram – Buckram calendered smooth. See *Book Cloth.*

Polisher – A hand tool, used warm or hot for crushing down or polishing leather after it is on the book.

Polishing Iron – Same as *Polisher.*

Posts – In loose-leaf work the cylindrical metals which the leaves are punched to fit, connecting upper and lower metal or other lips, holding the loose leaves firmly. Also called binding posts.

Prepare – In the days of hand sewn and hand forwarded books, consisted of fraying-out and tipping down cords or bands, affixing linings, removing protection leaves and completing all work prior to forwarding; in these days of machine work, denotes any hand work after sewing and before trimming such as hand tipping end signatures, tippings or mounting on special linings and "tipping-up" backs for gilder or as a precaution against signatures "breaking-away" while handling.

Press – Any compression mechanism for holding, squeezing, drying, stamping or inking; also applied to a hand-sewing bench or frame.

Pressed – A book thoroughly dried in press.

Projecting – A cover that extends beyond the trimmed edges of a book; usually applied as a term to extending or overhanging pamphlet covers.

Pull – The tendency of some papers to cause a pile of books or lift of paper to slide or slip out from under the clamping pressure while cutting; pulled – A book or lift of paper that shows a "pull" after trimming; pulling – The condition arising from "pull" while cutting. See *Drag, Dragging.*

Pulp – A body (pigment) color, not *aniline.*

Pulp Board – Any composition board manufactured by first producing a wet pulp and then rolling and drying.

Punching – The operation of punching holes in paper, etc., by machine or by hand.

Quack – A would-be journeyman who cannot fulfill his representations as a capable worker.

Quadrille Ruling Stock, Quadrule – Paper faint ruled in uniform squares from $\frac{1}{8}$ to $\frac{3}{8}$ of an inch. Much used when memorandum leaves are desired bound in a volume, particularly in catalog and salesmen's copies, prospectuses, etc.; also used in "interleaved" copies where a sheet of quadrille ruled paper is placed between each two printed leaves throughout entire book for recording memoranda, changes or corrections.

Quarter Binding – Technically a book having a narrow leather back and cloth or paper sides. Also applied to cloth back and paper sided books; leather on a quarter binding should show on the board sides one-eighth of the total width of boards.

Quarternion – Four sections or sheets inserted into each other after folding to make one section for gathering and sewing.

Quire – Originally the unit of count in all papers; 480 sheets were considered one ream and 24 sheets one quire. Paper today is usually counted 500 or 516

sheets to a ream and fractional lots are measured by 20, as $14\frac{11}{20}$ reams equals 14 reams, 275 sheets, on a basis of 500 sheets per ream.

RASP, RASPING – To roughen book edges purposely left uncut, by means of a coarse file or horseshoer's rasp. See *Rough Edges, Sanding.*

RE-BIND, RE-BINDING – To remove books from any type of cover, prepare for and case in new covers.

RECORD BUCKRAM – A trade name for a medium grade of buckram.

RECTO – The outside front cover; the right-hand, odd folioed pages in a book; See *Verso.*

REAM – The standard measure in buying book papers; 480, 500, 516 or 520 sheets according to the standard of the trade for a particular grade or make.

REAM COUNT – The unit count of a specific mill.

REINFORCE, REINFORCING – To strengthen by the use of any method or material, the individual section, lining, book or cover.

REINFORCED – Any signature, end lining, book or cover that has been given added strength by the use of stitching, mounting or guarding.

REINFORCEMENTS – All types of strengthening mediums.

RECTICULATE RULING – Similar to quadrille ruling with squares $\frac{3}{16}''$ in size.

REVERSE – See *Verso.*

REX CLOTH – Trade name for a moderately priced grade of book cloth much employed on school books. See *Book Cloth.*

RIDGES – The outer joints of books along and parallel to the backbone against which the cover boards are fitted. See *Joints.*

RIGHT ANGLE FOLDS – Folds made in printed sheets which alternate in direction across the flat sheet, as opposed to parallel or accordion folds. See *Folding, Imposition.*

RIP, RIP APART – Removing threads from sewed books in order to prepare for resewing, sometimes done to permit corrections, additions or insertion of stubs; (2) to tear book fabrics by hand lengthwise of the roll when no machine slitter is available; RIPPED – A book taken apart for resewing: (3) fabric rolls separated longitudinally.

ROUGH – An uneven edge; ROUGH CUT – A book edge purposely left rough in the cutting; ROUGH EDGE – Same as *Rough Cut.* ROUGHED – A rough cut edge, roughened by rasp or sanding machine. ROUGHER – A machine for roughening book edges; ROUGHING – The operation of filing, sanding or otherwise providing a rough edge.

ROUND – The rounded surface of the shelfback of the unbound book; (2) the particular shape of the book back.

ROUND AND BACK – After trimming, to shape the book for cover, giving a concave front, a convex back or binding edge and working up the joints on the book.

ROUND BACK – Denoting a rounded back as opposed to a flat back.

ROUND CORNER, CORNERS – Rounded corners on book or covers may take a variety of sizes.

ROUND CORNERED – A book that has had two corners cut round.

ROUND CORNERING – Feeding books or cover boards in a round

cornering machine; turning in corners by hand or automatic machines.

ROUNDED – A book shaped into round on the back.

ROUNDED AND BACKED – A book shaped into round and jointed for cover; may be done by hand in a job backer.

ROUNDER – A simple machine having two steel rollers between which books are fed to be shaped into round but not backed.

ROUNDER AND BACKER – A power machine which shapes into round, joints and firmly backs each book. See *Crawley Backer*.

ROUNDING – Shaping the book by hand with a hammer like a shoemaker's hammer and preparing it for a roller or job backer.

ROXBURGH – A style of half binding with leather back and cloth or paper sides, no corners, sometimes with gilt top and rough cut or deckle edges.

ROYAL VELLUM – Trade name for a new assortment of bright colored book cloths in vellum finish only; moderately priced. See *Book Cloth*.

ROYCROFT – A term applied to full leather or paper bound books, not backed; covers glued tight to back and solid to linings, flexible cover stock, not turned in, but overhanging on head, side and tail; sometimes not fastened to book with means other than cord or thong laced through holes drilled through entire book at binding edge; popular in suede leather covered books.

RULED PAPER – Blank paper that has been fed through a ruling machine and received a standard ruling design or special treatment; RULING – The operation of ruling paper. See *Quadrille Ruled Stock*.

RULING MACHINE – Machines for ruling flat papers, of two types, the pen and wheel and striker style.

RUNNER – Front board used in plough and press.

RUSSIA LEATHER – Cowhide. See *Leather*.

RUTLAND – A roan sheepskin, often applied to a sheep bound volume to denote its style.

SAW, SAWING – To cut apertures across the backbone of a book to receive the cords or bands used in hand or machine sewing, in olden days accomplished by use of a small hand saw cutting each incision separately, now done by a circular saw machine with an arbor accommodating as many saws as cuts required, and enabling one operator to saw in several books at one feeding.

SAW-IN, SAWING-IN – Same as *Saw*. See *Kerfs*.

SAWING-OUT – Same as *Saw, Saw-In*.

SCRATCHING UP – Scraping sharp incisions diagonally across the backs of rounded and jointed books preparatory to lining up, without cutting or damaging the sewing or bands, to make glue or paste "bite in" and hold the backlining.

SCRATCHING TOOL – Sharp hand tool used in "scratching-up."

SCREW PRESS – Gilder's press; (2) Plough press; (3) Screw type standing press; (4) Table presses.

SECTION – The English term for signature; any portion of a book from a four-page single-fold to a 64-page folded sheet to be used as a part of a book.

SEMI-FLAT – A book rounded and backed or rounded only with a very slight semblance of round. See *Flat Back.*

SEMI-FLEXIBLE – A cover made with thin board stiffener and cover material glued solid to lining. See *Flexible, Limp.*

SEMI-ROUND – Same as half-round.

SET OFF BOARDS – While making covers, allowing for a wider space between the book joints and the inner edge of boards, usually employed on side Singer stitched school books to allow for opening of covers.

SEW, SEWING – By hand, the operation of firmly affixing each signature to the next, by means of threads drawn through the back fold of the signatures in orderly, even arrangement of stitches, carrying the threads from each signature to the next, and so on until entire book is sewn into one unit; usually performed in a "sewing bench," with suspended cords or bands arranged to fit into apertures in back edge of signatures previously sawed, punched or cut out to admit them, flush with binding edge; where raised bands, or cords are desired on backbone of finished book, bands or cords are sometimes sewn on the back edges of the sections without "sawing-in." *All-along* denotes type of hand sewing where thread is carried from top to bottom of signatures and locked in both kettle stitches; two-along denotes sewing in which the threads of every other signature are locked in the kettle-stitches; *off and on* or *up and down* denotes method of sewing on cords or bands; off one hand or cord and on the next; likewise passing the thread from one signature into the next and then back to the previously sewn one, etc.; *overcast,* first gluing and separating books of single leaves into small lifts, the thickness of each lift depending on character and bulk of papers used; then overcast stitching each section (sections previously sawed out for sewing) and afterwards sewing the overcast signatures together in one of the common methods.

SEWED, SEWN – Books completely sewn.

SEWER – One who sews by hand; the operator of a sewing machine.

SEWING BENCH – A frame on which books are hand sewn; consists of a flat baseboard; two upright posts with threaded tops, a crossbar, and two wooden supporting nuts; tapes, cords or bands are stretched from the baseboard to the crossarm and the sewer works between the uprights with thread and needle. See *Frame.*

SEWING RACK – Same as *Sewing Bench,* or *Frame.*

SHAPE – The round or flat appearance of a book prepared for cover; (2) the general appearance of a finished book; (3) TO SHAPE – To prepare for backing.

SHAPE UP – To prepare books by hand for hand or roller backing; to round but not back by hand.

SHAPED – A rounded but unbacked book; SHAPER – One who shapes.

SHAVE – To take a very slight cut or trim from sheets or books; (2) to pare or skive leather; SHAVED – Leather covers, backs or corners that have been

pared or skived; SHAVING – Paring.

SHEAR CUT – As opposed to guillotine cut, a shearing cut of knife against another steel edge.

SHEARS – A hand operated single curved knife device for cutting board one sheet at a time. (See *Board Shears.*)

SHEEP – Originally a full bound sheepskin covered book, sometimes qualified as ¾ sheep, half sheep, etc.; SHEEPSKIN – The genuine hide of a sheep; SKIVER – A thin split from a sheepskin; SPLIT – Usually a flesh side split from a sheepskin. See *Leathers.*

SHEET – A piece of paper of any character, size and finish; (2) sheets of any material as sheets of gold, silver, ink leaf, etc.

SHELFBACK – The back or backbone of a book usually applied to the titled and decorated back strip of covers which is visible when books are standing upright in a shelf. See *Backbone, Back, Back Strip.*

SHOULDERS – The swell in a pile of books to be cut, caused by thickness of threads in the back; usually occurs in improperly "nipped" books.

SIDE, SIDES – The front or back cover face of a book; (2) the paper cloth or other material used for a cover side; (3) the half hide of a cow after tanning either in full weight or as a split. See *Leather, Cowhide, Buffing, Recto, Verso.*

SIDE CUT – Cutting the front edge only of books.

SIDED – Book covers having backs or backs and corners of contrasting or different material that have had cloth, paper or other material sides affixed in position and turned in. See *Siding Up.*

SIDING – Any material used for cover sides; (2) the operation of siding-up.

SIGNATURE – The term applied to the sections of the book proper; four, eight, sixteen, thirty-two and sixty-four page sections are customary. At times twelve, twenty, twenty-four, and forty-eight page sections result either from economy in paper size, printing requirements or saving in handling in the bindery after folding; the number of pages in each section is governed primarily by the bulk and size of the paper, the number of inserts to be placed and the total number of pages in the book. FIRST AND LAST SIGNATURES – As the strength of the ordinary binding rests primarily on the first and last signatures, these sections should in all cases be of the maximum number of pages of any of the book signatures; as for example, a book made up of 16 page sections should not have an 8-page title or end signature; if less than full signature must occur, they should be placed no nearer than third from the first or last; if the excess signature is but four pages, or as often occurs in Bible paper products, 8 pages, it should be jacketed around the first, last or intermediate signature; outserted (jacketed) rather than inserted, as if outserted it can be checked by the collators readily while an inserted section frequently drops out or is not caught in sewing.

SILK – Thread used in sewing Bibles, prayer books and reference volumes printed on very thin

or India Bible papers, where maximum strength is needed, combined with thin strands; formerly used as a means to impart added value to the binding; silk thread of same strand numbers as cotton is much stronger.

SILK CORD – Braided strands of silk previously twisted used for tying booklets, brochures, programmes, etc.

SILK FLOSS – Twisted silk used on small and thin section booklets for tying or stitching.

SILK RIBBON – Narrow woven silk or silk finish ribbon used as bookmarks or for tying booklets.

SILK SEWN – Books sewn with silk thread; on Bibles and prayer books often indicated by a tiny gold stamping on inner side of front cover – "silk sewn."

SILK STITCH – A type of fastening much used in booklets of a deluxe type in place of saddle-wire stitching.

SILK THREAD – Book-sewing thread made of silk instead of sea-island cotton, much in vogue on fine Bible and other India paper volumes.

SINGER SEW – To sew or stitch a complete book through the left (or back) hand margin, the stitches passing entirely through the book; reinforcements are often added especially in textbooks, in the form of twill or muslin strips on the outer lining, and through which the stitching passes. See *Whip Stitching.*

SKIN – The full hide of an animal after tanning and finishing as delivered to the binder; the finished sheets of sheep or calf vellum. See *Side, Leather, Cowhide, Buffing.*

SKIVER – A thin split from a sheep skin. See *Leather;* TITLE SKIVER – Quite thin skiver skins finished with a glazed surface, much used for book back labels. See *Law Style.*

SLIPS – The ends of tapes, cords or bands projecting over the backs after sewing, before tipping down or lacing in.

SLUR – A blurred impression in printing.

SMEAR, SMEARS, SMEARED – An ink smudge on printed pages; SMEARY – Printing that is slurred or blurred.

SMOOTH CALF – A fine calf binding, without tooling, usually having gold title on backbone only.

SMOOTH CUT EDGES – Plain trimmed edges on three sides.

SMOOTH CUT FOOT – Plain cut foot or tail edge.

SMOOTH CUT SIDE – Plain cut front edge.

SMOOTH CUT TOP – Plain cut top edge.

SMOOTH CUT TRIM – Same as smooth cut or plain edges.

SMUDGE – Smeared, dirty spots on printed book pages.

SOUDANESE GOAT – Goatskins obtained from the Soudan and tanned for bookbinding. See *Niger.*

S PATTERN – A fine grained, silk pattern used on book cloth. See *Book Cloth, Patterns.*

SPEW, SPEWING – On leather, a grayish mold which results from dampness or excessive heat which causes "sweating"; easily removed with a dry or slightly moist cloth.

SPINDLE – The worm type screw shafts that hold together the "cheeks" of wooden presses and by turning with a bar, expand or contract the opening.

SPLIT, SPLITS – See *Leather.*

SPLIT LEATHER – Any leather skin which has been reduced to desired thickness and uniformity by splitting away the under or flush side, as opposed to "shaving-off" the under side.

SPREAD, SPREADS – Two pages in a book facing each other which must be bound in such manner; may be printed in or as separate insert; a center spread would be the two facing pages in the center of a signature.

SPRINKLED CALF – Covers of smooth calfskin sprinkled with coloring materials or acids, to give variegated appearance; SPRINKLED EDGES – Book edges sprinkled as described.

SQUARE CORNERS – Corners of books or covers cut or made with right angle edges meeting in a distinct point.

SQUARES – The margin on the inside of the covers which shows at the head, side and foot of the finished book; size of square depends on the size, bulk and character of volumes; flexible bindings and pocket editions usually carry small squares while the heavier and more bulky volumes proportionately larger squares; in no instance, except where projecting index tabs are used in the book and must be protected by the boards, should the squares be over twice the thickness of the boards used; usually just the thickness of the board is allowed; FOOT SQUARE, TAIL SQUARE – Squares at bottom edge of book; HEAD SQUARE, TOP SQUARE – Square at the top edge of book; FRONT SQUARE, SIDE SQUARE – Square at front edge of book.

SQUEEZE – To smash; (2) the pressure exerted in gilding or casing presses; the impression in stamping or embossing.

STAB – To pierce a book through and through near the back edge for hand overcast sewing, to make holes in cover boards for lacing-on.

STAIN – Aniline dye used on book edges; STAINED EDGES – See *Edges;* STAINING – Operation of coloring book edges with aniline dye, either by sponge or air brush method.

START, STARTS – Usually applied to uneven "stepped" edges on plain or gilt edge volumes; caused by improper handling after binding, by using paper with grain opposed to backbone, by using papers which when folded, have in some signatures the grain with the backbone and others opposed; also resulting from imposing the book to give too thick and bulky signatures, or from inserting too many plates in any one signature, or too many in one half of a signature, giving a "lopsided" signature; sometimes results from using coated paper inserts in heavy or very soft expanding text signatures, and at times from careless or poor backing. See *Broken Backs;* STARTED, STARTING – Signatures which after a book is trimmed present an uneven or "stepped" appearance on the front edge.

STERLING – Trade name for an inexpensive grade of book cloth. See *Book Cloth.*

STICK IN, STICKING IN – To "hang in" books previously lined up to prepared covers. See *Pasting and Gluing -Down.*

STITCH – The operation by hand or machine of thread stitching a

book, signature, lining leaf, or portions of signatures for strength or to provide means of holding sections together.

STITCHED – A book or signature "stitched" as opposed to "sewed."

STITCHING – The same as *Stitch;* also applied to the finished product as: stitching of end sections, Singer stitching, side stitching with heavy thread, through muslin or twill protected fly and end sheets on a Singer machine; much employed on school books up to $\frac{7}{8}$" thick; wire stitching, also used as is Singer stitching for school books, and for pamphlet work; SIDE STITCH – Stitches made entirely through a book near and parallel to the backbone, either with thread or wire; WHIP STITCH – An overcast stitch in hand sewing, also applied to machine stitching one half portion of a signature, either by itself or with end linings or plates affixed, to strengthen the section or provide a stronger medium than one leaf of a signature on which to build reinforcements for end linings; silk or cord stitching, by hand or Roberts machine consists of drawing materials through holes pierced in back fold of sections and tying in loop or bow knot, much in vogue in pamphlet work; SADDLE STITCH – Stitching performed while section or inserted sections, sometimes with covers, are "straddled" over a V-shaped steel saddle, used principally on pamphlets of a few pages that can be made up as one section, either thin or thick; FIDDLE STITCH – A cross stitch employed in hand thread sewing by means of which the threads are passed from one section to the next and back again, repeating down the length of the backbone, thus fastening each section to the next independent of the bands and kettle-stitches.

THREAD STITCH – As differentiating from wire or silk stitching; binding one section pamphlets by means of looped threads passed through three holes pierced in the back fold, usually tied in bow knot on outside.

STRAWBOARD – A pulp board of a straw base. See *Board.*

STRETCH – The natural expansion of materials in process of binding and especially when adhesives are applied.

STUB, STUBS, STUBBING – Narrow paper or board strips, sewn in between or within sections to allow for extra bulk of "tip-ons," folded maps or the like; much used in albums, sample books illustrating fabrics or other materials, by use of actual samples bound in.

STUBBED – A book made with stubs; (2) an insert tipped to a stub.

STYLE – The definition of the binding, as cloth, boards, part-cloth, Fabrikoid, Artcraft, three fourth leather, full leather, etc.; (2) also of the method of binding, as case style, extra, de luxe.

SUEDE – The term applied to a velvet finish obtainable in certain leathers such as cowhide, calf, sheep, lamb and morocco skins; made by buffing up the flesh side of skins, after tanning, on an emery wheel; the coloring is then brushed on as the skins cannot be immersed in the color else they lose the nap which

makes the suede or velvet finish; this is called "brush-table-coloring."

SUEDE FINISH – Any velvety effect on fabric or leather.

SUN TANNED – So called "Arabian" morocco was claimed to be tanned by the exposure of the cream colored acid free skins to the rays of sunshine only; hence the term, "sun tanned."

SUPER – Same as *Crash*.

SUPERED – A book with super or crash affixed to back.

SUPERING – Affixing supers in back-lining.

SUPERS – Crash applied in more than one unit.

SWELL – The excess bulk at the binding edge of the book caused by using hard papers which do not permit the thread used in sewing to sink into the paper (see *Sewing*); by imposing a book having a large number of pages in sections not sufficiently thick to take up the added thickness of the two thread thicknesses to each signature; in inserting plates by French-tip system throughout book in excess of the carrying capacity of the paper of the book proper; also caused by not using thread thin enough in proportion to the bulk, number of sections, and character of paper of the book.

TABLE, TABLES – Bindery work tables usually of maple, oak or steel; TABLE OF MACHINE – The base or bed on which material is placed or fed for processing.

TACK – The degree of stickiness evinced by glue, paste, or ink that is not dry.

TAG – A good grade of manila tag board much used in semi-flexible coverwork; BUNDLE TAGS – Bundle markers indicating job name, order number, quantity and pages of signatures; SIGNATURE TAGS – Same as *Bundle Tags*; STOCK TAGS – Flags or markers for all kinds of materials.

TAIL – The bottom or foot edge of a book; (2) the "off side" of a sheet as it passes into a folder.

TARBOARD – A good quality binders' board made with tar or oakum as an ingredient. See *Board*.

TEAR, TEARS – Rents in flat sheets, signatures or leaves of finished books; usually small tears which appear in the margins of books after binding; sometimes occur in the center of pages where detection in binding is impossible except in a leaf-by-leaf examination.

TEMPLATE, TEMPLATES – Any pattern of pulpboard or metal used as a guide in cutting leather covers or backs.

TENON SAW – Hand saw for sawing out.

TENSION – The degree of firmness with which thread used in sewing sections together is drawn from section to section.

THIN TEXT – Thin machine-finished paper much used in reference books to reduce bulk.

THONG, THONGS – Narrow strips, strings or laces of leather used for tying leather cover on books, brochures, etc.; usually the covers are merely cut stock, unlined and not turned in, Roycroft style; THONGED – A book with cover laced on as described.

THREAD – Machine sewing or stitching thread of Sea-Island Cotton used in sewing sections together; LINEN THREAD (Hayes) – A high grade strong thread used in hand sewing exclu-

sively; SILK THREAD – Thread of silk fibre instead of cotton used in Bible work.

THREAD SEW – To sew any book with thread as opposed to stitching.

THREAD STITCH – To stitch any book with thread as opposed to wire stitching.

THREE QUARTER BINDING – Leather back and corners with cloth or paper sides, the leather back showing on board sides a distance equal to ⅓ of the board width and having the same depth of corner, measured diagonally.

THROW OUT, THROWN OUT – Inserts so designed and placed that when unfolded all the printing on the insert appears outside the edges of the book; intended in engineering and all technical volumes to permit perusing text matter and insert at same time without changing place or position of book.

TIGHT – A cover in which the material is solidly glued or pasted to its stiffener.

TIGHT BACK – Denotes a book which is fastened in the cover by first gluing off the back of the book and "hanging in" the book in the cover, i.e., gluing the cover solidly to the backbone of the book; the book then being "pasted down" by applying paste evenly to the end leaves and pressing until dry. The correct usage of the term indicates a book "hung in" with glue. On cheaper volumes a tight back is sometimes obtained by "pasting off" the backbone when applying paste to the end leaves and then pressing snugly in the usual manner.

TIGHT FIT – A cover in which the back space is inadequate for the width of the book back, causing a tendency for covers to spring open.

TIP – Same operation as pasting; (2) an insert, leaf or section pasted in or to another.

TIPPER – A hand paster; (2) a gluer who "tips-up" books.

TIPPING – Pasting; (2) gluing up backs.

TIPS – Inserts.

TITLE – Usually denotes the first or title signature of the book, containing the title page; (2) also applied to the main dies used in stamping front cover or backbone when those dies repeat the wording of the book title. BASTARD TITLE, HALF TITLE, MOCK TITLE – Other than the main or full title page of book. MAIN TITLE, FULL TITLE – The main title page of the book; SUB-TITLE – A subordinated title appearing under the main front cover or backbone title.

TITLE PAGE – The page appearing in the first section of the book, on which appears the book title, author's name, publisher's imprint and colophon.

TITLE SKIVER – Thin skiver leather, having a varnished surface; used principally on legal or reference books bound in cloth, as labels on backbone to cause the gold lettering which is stamped thereon to stand out and be distinctive; such labels are always stamped before affixing same to the book. See *Leathers, Skiver.*

TOP OF BOOK – Top edge.

T PATTERN – A pattern, obtainable on book cloth, composed of longitudinal regular ridges and valleys. See *Book Cloth.*

TREE CALF – Smooth light colored

calfskin, which after cutting to cover size is treated with acid to represent a tree trunk, and branches; usually a dual design appearing on front and back covers.

Tree Marble – Same as *Tree-calf* with a marbled surface obtained in same way as marbled paper or edges.

Trim – To cut books in cutting machine.

Trimmed – Books that have been cut.

Trimmed Edges – Edges cut but not trimmed smooth.

Trimmed Flush – A book having cover and inside sheets cut at one operation, leaving no overhang to cover.

Trimming – Cutting.

Trindle – A device for forcing out the round of a book while it is cut.

Turkey Morocco, Goat – Genuine goatskin obtained from the Mediterranean territory.

Turn-In – The portion of material used in making covers such as paper, cloth or leather which comes over the edges of the boards on to the inside of the boards, thus covering the board edges and completing the cover; the usual turn-in is ½″ to ¾″ all around.

Turn Up, Turning Up – Removing the round in books which are to be trimmed "in boards."

Turned-In – Covers with edges turned in and so far as cover-making, completed.

Tuxedo – Trade name for an inexpensive grade of cloth. See *Book Cloth.*

Twill – A heavy grade of cotton muslin.

Unbacked – A book that may be rounded (shaped into round) but not backed; a flat back book.

Unbound – Commonly used to denote folded, plated and gathered book stock reserved for orders or shipped out for special purposes.

Uncut – Books having three edges untouched after folding; erroneously applied to denote a book with cut top, uncut side and foot edges.

Unfinished – Completely bound volume without hand tooling or lettering; (2) incompleted bindings.

Ungather, Ungathering – To reverse the process of gathering, thus assorting books back into piles of separate signatures; resorted to where it is desired to insert illustrations after books have been gathered or make numerous cancellations and substitutions.

Unopened – Folded signatures not trimmed nor having "bolts" cut open.

Unsplit – Shaved skins of leather. See *Split, Shaved.*

Vegetable Parchment – A thin, quite tough, cellulose product made in imitation of calf or sheep parchment.

Vellum – Thin, especially prepared calf or lamb gut.

Vellum De Luxe – Trade name for a moderately priced book cloth. See *Book Cloth.*

Vellum Finish – The smooth ungrained cloth. See *Book Cloth.*

Velvet – A finish on leathers the same as suede finish; in cloth the usual velvet used in dress goods. See *Suede, Leathers.*

Verso – The left hand, even folioed pages of a book; the outside back cover.

Visible Cloth Joint – A muslin

twill or book cloth (visible) joint appearing inside the front and back covers at the backbone joint; made by jointing fly leaf and pastedown, sometimes reinforced to book by mounting or stitching. See *Joints*.

VOLUME – A single book; (2) indicating quantity, as "volume production."

WARP – The threads in any fabric extending the long way; (2) a cover which does not lie flat all over and "hug" the book.

WARPED, WARPING – Covers that show a tendency to warp or curl.

WASH – To clean off covers by washing with size, gasoline or other cleansing medium, to remove finger marks, stains, etc.

WASHES – Various cleaning fluids for freshening covers.

WATERGRAIN – A fine pin-point grain much used on buffings.

WAVED – A cover that has warped or curled.

WAVERLY – A trade name for a grade of book cloth. See *Book Cloth, Commons*.

WEDGE SHAPE – A book that is thinner on the front edge than at the backbone.

WEFT (WOOF) – The cross thread in a piece of woven goods. See *Woof*.

WHIP – To sew or stitch in overcast style. See *Stitching*.

WHOLE BOUND – Same as *Full Bound, Full Leather*.

WOODEN FOLDER – A hand tool, usually of maple about eighteen inches long, one and one half inches wide and three sixteenths thick, with rounded ends and beveled edges, used by hand folders. See *Folding, Hand*.

WOOF – The cross threads in fabrics extending the short way; also called *weft* and sometimes *filling*, or *filler*.

WRINGER – A power driven device, of two rubber rollers through which covers are fed when made by hand to smooth uniformly and cause material to adhere firmly to boards.

WRINKLE, WRINKLING – Materials that do not present a perfectly smooth surface, as signatures with slight diagonal valleys appearing near the head at the back fold.

ZINCS – Metal plates used for interleaving, or as fenders in casing or covering; zincs instead of "tins" in casemaking; large sheets of metal interposed between lifts of flat printed India or thin papers on automatic feeders to folders, to prevent sagging and sponginess; pressing boards used in casing-in having zinc edgings instead of brass.